

UNCLASSIFIED

AD NUMBER

AD013318

LIMITATION CHANGES

TO:

Approved for public release; distribution is unlimited.

FROM:

Distribution authorized to U.S. Gov't. agencies and their contractors;  
Administrative/Operational Use; JUN 1953. Other requests shall be referred to Naval Proving Ground, Dahlgren, VA.

AUTHORITY

USNSWC LTR, 24 JUN 1976

THIS PAGE IS UNCLASSIFIED

UNCLASSIFIED

AD NUMBER

AD013318

CLASSIFICATION CHANGES

TO:

unclassified

FROM:

confidential

AUTHORITY

30 Jun 1965, DoDD 5200.10

THIS PAGE IS UNCLASSIFIED

# UNCLASSIFIED

AD NUMBER	
AD013318	
CLASSIFICATION CHANGES	
TO:	confidential
FROM:	unclassified
LIMITATION CHANGES	
TO: Distribution authorized to U.S. Gov't. agencies and their contractors; Administrative/Operational Use; JUN 1953. Other requests shall be referred to Naval Proving Ground, Dahlgren, VA.	
FROM: Approved for public release; distribution is unlimited.	
AUTHORITY	
30 Jun 1965, DoDD 5200.10 xxx; USNSWC LTR, 24 JUN 1976 xxxx	

THIS PAGE IS UNCLASSIFIED

**CONFIDENTIAL**

SECURITY INFORMATION

AD No. 13318  
ASTIA FILE COPY

U. S. NAVAL PROVING GROUND  
DAHLGREN, VIRGINIA

REPORT NO. 1144

AIR DEFENSE WEAPON PROJECTILE FUZES

89th Partial Report

-----  
TEST OF POINT DETONATING FUZE MARK 30 MOD 3

FINAL Report

Copy No. 7

Task

Assignment NPG-Re2b-1-1-53

Classification CONFIDENTIAL  
SECURITY INFORMATION

**CONFIDENTIAL**



CONFIDENTIAL

NFG REPORT NO. 1144

Test of Point Detonating Fuze Mark 30 Mod 3

-----

PART A

SYNOPSIS

1. Previous tests of standard production Mark 30 Mod 3 fuzes assembled in 3"/50 projectiles have shown an excessive number of fuzes exhibiting plastic ogive breakage during the early stages of flight.
2. This test was conducted to determine the ogive breakage characteristics of experimental and of standard production Mark 30 Mod 3 point detonating fuzes fired at service or proof pressures.
3. It is concluded that experimental and standard production Mark 30 Mod 3 PD fuzes assembled in 3"/50 Mk 27 projectiles fired at service or greater pressures performed as follows:
  - a. The fuzes with experimental plastic ogives performed satisfactorily.
  - b. The standard production fuzes continued to exhibit plastic ogive breakage.
4. It is believed that Mark 30 Mod 3 PD fuzes with lettering printed on the thin portion of the ogive around the on-off switch exhibit less ogive breakage than those that have the lettering impressed into the ogive.

CONFIDENTIAL  
SECURITY INFORMATION

CONFIDENTIAL

NIG REPORT NO. 1144

Test of Point Detonating Fuze Mark 30 Mod 3

TABLE OF CONTENTS

	<u>Page</u>
SYNOPSIS . . . . .	1
TABLE OF CONTENTS. . . . .	2
AUTHORITY. . . . .	3
REFERENCES . . . . .	3
BACKGROUND . . . . .	3
OBJECT OF TEST . . . . .	4
PERIOD OF TEST . . . . .	4
DESCRIPTION OF ITEM UNDER TEST . . . . .	4
DESCRIPTION OF TEST EQUIPMENT. . . . .	5
PROCEDURE. . . . .	5
RESULTS AND DISCUSSION . . . . .	6
CONCLUSIONS. . . . .	8
APPENDIX A - FIRING RECORD . . . . .	TABLE I 1-2 (Incl) TABLES II-III (Incl)
APPENDIX B - NIG PHOTOGRAPHS (PHASE I) . . . . .	FIGURES 1-82 (Incl)
APPENDIX C - NIG PHOTOGRAPHS (PHASE II). . . . .	FIGURES 83-112 (Incl)
APPENDIX D - NIG PHOTOGRAPHS (PHASE III) . . . . .	FIGURES 113-141 (Incl)
APPENDIX E - DISTRIBUTION. . . . .	1-2 (Incl)

CONFIDENTIAL  
SECURITY INFORMATION

Test of Point Detonating Fuze Mark 30 Mod 3  
-----PART BINTRODUCTION

## 1. AUTHORITY:

This test was conducted under Task Assignment Re2b-1-1-53 in accordance with references (a), (b) and (c) as authorized by reference (d).

## 2. REFERENCES:

- a. NOL Work Request FA-36 of 14 August 1952
- b. NOL Work Request FA-46 of 22 October 1952
- c. NOL Work Request FA-50 of 21 November 1952
- d. EUORD ltr NP9 Re2b-DBL:bjn Ser 42662 of 29 July 1952
- e. NAVPROV Report No. 992 of 27 June 1952
- f. NAVPROV ltr OTF:RDC:dmf A11/2224-1 Ser 22770 of 28 August 1952 to BUORD

## 3. BACKGROUND:

a. The reported excessive flight dispersion of rounds assembled with Mark 30 Mod 3 PD fuzes was believed due to the plastic ogive breaking up in handling or in flight.

b. Reference (e) reported that 37% (7 out of 19) Mark 30 Mod 3 fuzes, assembled in 3"/50 Mark 27 projectiles fired at service and proof pressure, exhibited plastic ogive breakage within a 1000 foot range.

c. Reference (f) reported that thirty-six (36) out of thirty-eight (38) Mark 30 Mod 3 fuzes assembled in 3"/50 Mark 33 Mod 0 projectiles exhibited satisfactory functioning when fired at proof and service conditions; however, owing to the strong possibility that one fuze projectile detonated low order in the barrel and owing to the fuze performance reported in reference (e), it was recommended that the Mark 30 Mod 3 PD fuze be declared unsatisfactory for service use.

CONFIDENTIAL

NPG REPORT NO. 1144

Test of Point Detonating Fuze Mark 30 Mod 3  
-----

4. OBJECT OF TEST:

This test was conducted in three phases to determine the ogive breakage characteristics of experimental and standard production Mark 30 Mod 3 point detonating fuzes fired at service and proof pressures.

5. PERIOD OF TEST:

a. Date Project Letter	14 August 1952
b. Date Commenced Test	26 September 1952
c. Date Completed Test	12 December 1952

PART C

DETAILS OF TEST

6. DESCRIPTION OF ITEM UNDER TEST:

- a. Phase I: Mark 30 Mod 3 PD fuzes with various experimental plastic ogives plus fuzes from standard production lot AOP-82 (Arkansas Ordnance Plant)
- b. Phase II: Mark 30 Mod 3 PD fuzes from Production lots EW-1078B (Easy Wash Machine Co.) and AOP-35 (Arkansas Ordnance Plant)
- c. Phase III: Mark 30 Mod 3 PD fuzes from production lot AOP-83 (Arkansas Ordnance Plant)

CONFIDENTIAL  
SECURITY INFORMATION

Test of Point Detonating Fuze Mark 30 Mod 3  
-----

## 7. DESCRIPTION OF TEST EQUIPMENT:

- a. Guns:
  - (1) 3"/50 Mark 22 Mod 3 No. 16314 (Phases I and II) ESR: 1247-1403.
  - (2) 3"/50 Mark 21 Mod 0 No. 7959 (Phase III) ESR: 1850-1905.
- b. Projectiles:
  - (1) Phase I: 3"/50 Mark 27 Mod 2, Composition "A" loaded to service weight with Mark 54 Mod 0 auxiliary detonators from AOP Lot 1035.
  - (2) Phases II and III: 3"/50 Mark 27 Mod 4, epsom salts loaded to service weight with dummy auxiliary detonators.
- c. Speed Graphic Camera: Located in a microflash box 400 feet from the gun muzzle.
- d. Ballistic Synchro Camera: Located 1000 feet from the gun muzzle.
- e. Targets: During 20 rounds of Phase I, 1/4" mild steel targets were placed at 45° obliquity and 1050 feet from the gun muzzle.

## 8. PROCEDURE:

a. In Phase I, the fuzes were assembled in 3"/50 Mark 27 Mod 2 Composition "A" loaded projectiles and fired at service and proof pressures through a microflash box, past the ballistic synchro camera, against 1/4" mild steel targets in order to correlate the functioning performance of the fuze with apparent ogive breakage as recorded by the cameras. After completing 20 rounds of 100% satisfactory fuze functioning versus targets, the targets were removed and the test was continued by firing twenty-five (25) more rounds past the cameras down river for water impact.

Test of Point Detonating Fuze Mark 30 Mod 3  
-----

b. The subject fuzes, during Phases II and III, were assembled in Mark 27 Mod 4 inert projectiles and fired at service and proof pressures through the macroflash box, past the ballistic synchro camera, down river for the purpose of obtaining photographs of the plastic ogive during the early stages of flight. Twenty (20) rounds were fired in each of these phases.

c. During Phase I, the projectiles were fired with the fuze setting screw in the "on" position; and during Phases II and III, the projectiles were fired with the screw in the "off" position.

#### 9. RESULTS AND DISCUSSION:

a. A detailed firing record is shown in Appendix (A).

b. Photographs of the projectiles in flight are included in Appendices (B), (C) and (D). Photographs were obtained from either or both camera positions on all rounds except 9, 11, 12 and 20 of Phase III.

c. In Phase I, the experimental plastic ogive fuzes as well as the standard production fuzes exhibited a satisfactory performance since twenty (20) rounds displayed 100% satisfactory functioning vs 1/4" mild steel targets at 45° obliquity and none of the forty-five (45) rounds tested exhibited apparent plastic ogive breakage. The twenty-five (25) rounds fired down river for water impact did not function 100% satisfactorily, however, this performance was disregarded since the angle of entry was extremely low and the water was unusually choppy during the test.

d. In Phase II, none of the photographs of Appendix (C) indicate distinct breakage of the plastic ogive, however, it is believed that photographs of rounds 11 and 18 indicate some breakage of the ogive in the general area of the on-off switch.

e. Distinct ogive breakage is noted on round 8, Phase III, in Appendix (D). Ogive breakage is also believed to have occurred during this phase on round 16. The test rounds of this phase were fired from 3"/50 Mk 21 Mod 0 Gun No. 7959 which was used in the tests reported in reference (e) and was believed to have been damaged in the test of Mk 30 Mod 3 fuzes reported in reference (f).

Test of Point Detonating Fuze Mark 30 Mod 3  
-----

f. In summation, the percentage of subject production fuzes exhibiting plastic ogive breakage does not agree with the results of similar tests conducted and reported in reference (e). This variation may be due, in part, to the fact that the overall quality of the photographs during this test were not as satisfactory as those of reference (e) and therefore the possibility exists that some ogive breakage, which occurred during this test, was not observed. However it is believed that photographic quality is a contributing factor only and not the major cause of the discrepancy.

g. During Phase II it was noted that Easy Wash Machine Co. fuze lot 1078B differed in that the stenciling around the on-off switch was impressed and not painted in the manner of other available production lots. Upon examining the performance of this fuze lot it was noted in reference (e) that ten (10) rounds from lot 1078B were tested and six (6) of the seven (7) defective fuzes were from lot 1078B. In Phase II, it is believed that two (2) rounds (11 and 18) are defective in the five (5) rounds tested from lot 1078B. This 60% satisfactory performance is in general agreement with the 40% satisfactory performance exhibited by lot 1078B in reference (e). Furthermore, it was noted in reference (e) and Appendices (B), (C) and (D) that the plastic ogive breakage appears to originate and tear from the general area of the on-off switch.

h. This information has led to the belief that the plastic ogive of the Mark 30 Mod 3 must be of borderline strength, and that when lettering (e.g. S.Q.) is impressed in the extremely thin portion of the ogive behind the on-off switch, the plastic is weakened sufficiently to cause an extremely high percentage of plastic ogive failures.

CONFIDENTIAL

NPG REPORT NO. 1144

Test of Point Detonating Fuze Mark 30 Mod 3  
-----

PART D

CONCLUSIONS

10. a. It is concluded that the experimental and standard production Mark 30 Mod 3 PD fuzes assembled to 3"/50 Mk 27 projectiles fired at service or greater pressures performed as follows:

(1) The fuzes with experimental plastic ogives performed satisfactorily.

(2) The standard production fuzes continued to exhibit plastic ogive breakage.

b. It is believed that Mark 30 Mod 3 PD fuzes with lettering painted on the thin portion of the ogive around the on-off switch exhibit less ogive breakage than those that have the lettering impressed into the ogive.

CONFIDENTIAL  
SECURITY INFORMATION



CONFIDENTIAL

NPG REPORT NO. 1144

Test of Point Detonating Fuze Mark 30 Mod 3  
-----

The tests upon which this report is based were conducted by:

R. D. CROMWELL, Plate Fuze Battery Officer  
Terminal Ballistics Department

This report was prepared by:

R. D. CROMWELL, Plate Fuze Battery Officer  
Terminal Ballistics Department


This report was reviewed by:

R. H. LYDDANE, Director of Research  
Terminal Ballistics Department

W. B. ROBERTSON, Lieutenant Commander, USN  
Terminal Ballistics Officer  
Terminal Ballistics Department

C. C. BRAMBLE, Director of Research, Ordnance Group

APPROVED: J. F. BYRNE  
Captain, USN  
Commander, Naval Proving Ground

  
E. A. RUCKNER  
Captain, USN  
Ordnance Officer  
By direction

CONFIDENTIAL  
SECURITY INFORMATION

CONFIDENTIAL

NPG REPORT NO. 1144

U. S. NAVAL PROVING GROUND  
DAHLGREN, VIRGINIA

Eighty-Ninth Partial Report

on

Air Defense Weapon Projectile Fuzes

-----

Final Report

on

Test of Point Detonating Fuze Mark 30 Mod 3

Project No.: NPG-Re2b-1-1-53  
Copy No.: 7  
No. of Pages: 9

Date: JUN 30 1953

CONFIDENTIAL  
SECURITY INFORMATION

CONFIDENTIAL

NPG REPORT NO. 1144

## Test of Point Detonating Fuze Mark 30 Mod 3

TABLE I

## FIRING RECORD (PHASE I)

Rd. No.	Fuze		Muzz. Vel. (f/s)	Chamber Press. (T/in <sup>2</sup> )	Target (1050 ft.)		Fuze** Action
	No.	Type*			Mat.	Oblia.	
1	-	Std.	-	14.4	1/4" MS	45°	HO
2	-	Std.	2701	13.3	"	45°	HO
3	-	Flaskon	2688	13.1	"	45°	HO
4	-	Std.	-	12.7	"	45°	HO
5	12809	Rag	2698	12.8	"	45°	HO
6	3325	Cord	2683	12.5	"	45°	HO
7	-	Polyester	2687	12.5	"	45°	HO
8	-	Std.	-	12.5	"	45°	HO
9	-	Flaskon	-	-	"	45°	HO
10	2303	Rag	-	-	"	45°	HO
11	3320	Cord	-	-	"	45°	HO
12	-	Polyester	-	-	"	45°	HO
13	-	Flaskon	-	-	"	45°	HO
14	-	Flaskon	-	-	"	45°	HO
15	12809	Rag	-	-	"	45°	HO
16	2302	Rag	-	-	"	45°	HO
17	11678	Cord	-	-	"	45°	HO
18	11678	Cord	-	-	"	45°	HO
19	-	Polyester	-	-	"	45°	HO
20	-	Polyester	-	-	"	45°	HO
21	-	Std.	-	-	Down River	Water Impact	DUD
22	-	Flaskon	-	-	"	"	HOWI
23	12809	Rag	-	-	"	"	HOWI
24	3350	Cord	-	-	"	"	HOWI
25	-	Polyester	-	-	"	"	HOWI
26	-	Std.	-	-	"	"	DUD
27	-	Flaskon	-	-	"	"	DUD
28	2303	Rag	-	-	"	"	HOWI
29	11678	Cord	-	-	"	"	HOWI
30	-	Std.	-	-	"	"	DUD
31	-	Flaskon	-	-	"	"	DUD
32	12809	Rag	-	-	"	"	DUD
33	11678	Cord	-	-	"	"	HOWI
34	-	Std.	-	-	"	"	HOWI
35	-	Flaskon	-	-	"	"	HOWI
36	2300	Rag	-	-	"	"	HOWI
37	3320	Cord	-	-	"	"	HOWI

CONFIDENTIAL  
SECURITY INFORMATION

CONFIDENTIAL

NPG REPORT NO. 1144

Test of Point Detonating Fuze Mark 30 Mod 3

TABLE I (Continued)

Rd. No.	Fuze		Muzz. Vel. (f/s)	Chamber Press. (T/in <sup>2</sup> )	Target (1050 ft.)		Fuze** Action
	No.	Type*			Mat.	Oblq.	
38	-	Polyester	-	-	Down River	Water Impact	DUD
39	-	Std.	-	-	"	"	DUD
40	-	Plaskon	-	-	"	"	DUD
41	12809	Rag	-	-	"	"	DUD
42	2320	Cord	-	-	"	"	DUD
43	-	Std.	-	-	"	"	DUD
44	-	Plaskon	-	-	"	"	DUD
45	12809	Rag	-	-	"	"	DUD

NOTE:

Type\*:

Std. = Standard Production Lot AOP-83 Manufactured by the Arkansas Ordnance Plant

Plaskon = Plaskon Plastic

Rag = Rag Filled Phenol Plastic

Cord = Cord Filled Phenol Plastic

Polyester = Polyester Glass Filled Plastic

Fuze Action\*\*:

HO = High Order Detonation on Target Impact

HOWI = High Order Detonation on Water Impact

DUD = No Fuze Action

CONFIDENTIAL

NIG REPORT NO. 1144

Test of Point Detonating Fuze Mark 30 Mod 3  
-----TABLE IIFIRING RECORD (PHASE II)

<u>Rd. No.</u>	<u>Fuze* Lot</u>	<u>Chamber Press. (T/in<sup>2</sup>)</u>	<u>Muzzlo Velocity (f/s)</u>
1	AOF-35	15.2	2730
2	"	14.2	2737
3	"	18.3	2967
4	"	18.8	2965
5	"	17.5	2894
6	"	20.3	3016
7	"	16.9	2808
8	EW-1078B	16.0	2810
9	"	19.3	--
10	AOF-35	19.4	2981
11	EW-1078B	20.5	2999
12	AOF-35	20.6	--
13	EW-1078B	19.0	2989
14	AOF-35	19.3	2994
15	"	20.6	3006
16	"	20.5	2977
17	"	15.4	2794
18	EW-1078B	14.6	2776
19	AOF-35	15.3	2772
20	"	16.0	2780

\*Fuze Lot: AOF-35 = Arkansas Ordnance Plant Lot No. 35  
EW-1078B = Easy Wash Machine Co. Lot 1078B

CONFIDENTIAL  
SECURITY INFORMATION

APPENDIX A

CONFIDENTIAL

NPG REPORT NO. 1144

Test of Point Detonating Fuze Mark 30 Mod 3

-----

TABLE III  
FIRING RECORD (PHASE III)

<u>Rd. No.</u>	<u>Fuze Lot</u>	<u>Chamber Pressure (T/in<sup>2</sup>)</u>	<u>Muzzle Velocity (f/s)</u>
1	40F-83	15.8	2697
2	"	18.0	2923
3	"	18.0	2905
4	"	20.1	2953
5	"	18.6	2915
6	"	19.9	2933
7	"	20.8	2939
8	"	19.2	2941
9	"	14.5	2732
10	"	20.6	2951
11	"	18.8	2940
12	"	18.1	--
13	"	15.0	2708
14	"	15.9	2707
15	"	14.3	2691
16	"	14.7	2745
17	"	14.4	2727
18	"	15.1	2750
19	"	14.9	2729
20	"	16.2	2806

CONFIDENTIAL  
SECURITY INFORMATION

APPENDIX 4

NP9 62388

26 October 1952

CONFIDENTIAL  
SECURITY INFORMATION

Mark 30 Mod 2 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 1.  
Phase No. 1.



Fig. 1

RI9 62389

26 October 1952

Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 1.

CONFIDENTIAL  
SECURITY INFORMATION



1-1



CONFIDENTIAL  
SECURITY INFORMATION

NP9 62390 26 October 1952  
Mark 30 Mod 3 ED Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 2.  
Phase No. 1.



Fig. 3

W 9 62391

26 October 1952

Mark 30 Mod 3 ID Fuze, with standard ogive assembled to 3"/50 Mark 27 Mod 2 pro-

jectile fired at service velocity. Photographed at 1000 ft. range. Round No. 2.

Inc. No. 1.

CONFIDENTIAL  
SECURITY INFORMATION

CONFIDENTIAL  
SECURITY INFORMATION  
26 October 1952  
Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 3.  
Phase No. 1.



Fig. 5

... 9 62593

27 October 1952

Mark 30 Mod 3 ID Fuze with standard drive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 4.

CONFIDENTIAL

SECURITY INFORMATION



Fig. 6

HP9 62394

27 October 1952

Mark 30 Mod 3 TD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 1.

CONFIDENTIAL  
SECURITY INFORMATION

Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 4.



7- -

CONFIDENTIAL  
SECURITY INFORMATION

27 October 1952  
Mark 30 Mod 3 3.5 inch rocket fired phenol  
mod 2 projectile fired at service velocity.  
Round No. 5. Phase No. 1.



Fig. 8.

NP9 62396  
27 October  
Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27  
Mod 2 projectile fired at service velocity. Photographed at 400 ft. range.  
Round No. 6. Phase No. 1.

CONFIDENTIAL

SECURITY INFORMATION

Fig. 9.

CONFIDENTIAL  
SECURITY INFORMATION

27 October 1952

Mark 30 Mod 3 ID Fuze with polyester glass filled ogive assembled to 3"/50  
Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft.  
range. Round No. 7. Phase No. 1.



Fig. 10



NP9 62398

27 October 1952

Mark 30 Mod 3 VV D Fuze with polyester glass filled ogive assembled to 3<sup>W</sup>/50  
Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft.  
range. Round No. 7, Phase No. 1.

CONFIDENTIAL

SECURITY INFORMATION

Fig. 11

7-0

CONFIDENTIAL  
SECURITY INFORMATION  
27 October 1952  
N9 62399  
Mark 30 Mod 3 ID Fuze with standard drive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 8.  
Phase No. 1.



Fig. 12

WFO-02400

27 October 1952

Mark 3 Mod 3 FD Fuze with standard olive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 8.

CONFIDENTIAL  
SECURITY INFORMATION



Fig. 13

NP9 62401

27 October 1952

Mark 30 Mod 3 PD fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 9.

CONFIDENTIAL

SECURITY INFORMATION

Mark 27 Mod 2 pro-

jectile fired at service velocity. Photographed at 400 ft. range. Round No. 9.



Fig. 14

NF9 62402

27 October 1952

Mark 30 Mod 3 PD Fuze with plaskon ofive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 9.  
Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION



4-2

CONFIDENTIAL  
SECURITY INFORMATION  
27 October 1952  
Mod 3 ID Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27  
Mod 2 projectile fired at service velocity. Photographed at 400 ft. range.  
Round No. 10. Phase No. 1.

PH. 24  
10/13

Fig. 16

CONFIDENTIAL  
SECURITY INFORMATION

27 October 1952

NI 9 62404

Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27  
Mod 2 projectile fired at service velocity. Photographed at 400 ft. range.  
Round No. 11. Phase No. 1.

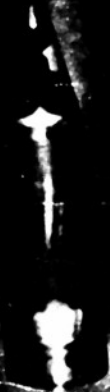


Fig. 17

N 9 62405

27 October 1952

Mark 30 .00 3 D Fuze with cord filled phenol orive assembled to 3" / 50 Mark 27  
100 2 projectile fired at service velocity. Photographed at 1000 ft. range.  
Round 00. 11. Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION

Fig. 18

11-1



CONFIDENTIAL  
SECURITY INFORMATION

27 October 1952

929 62406

Mark 30 Mod 3 ID Fuze with Polyester Glass filled ogive assembled to 3"/50.  
Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft.  
range. Round No. 12. Phase No. 1.

11/21/52

11/21/52

Fig. 19

IL 9 62407 27 October 1952  
Mark 30 Mod 3 PD Fuze with polyester glass filled ogive assembled to 3"/50  
Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft..  
range. Round No. 12. Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION



Fig. 20

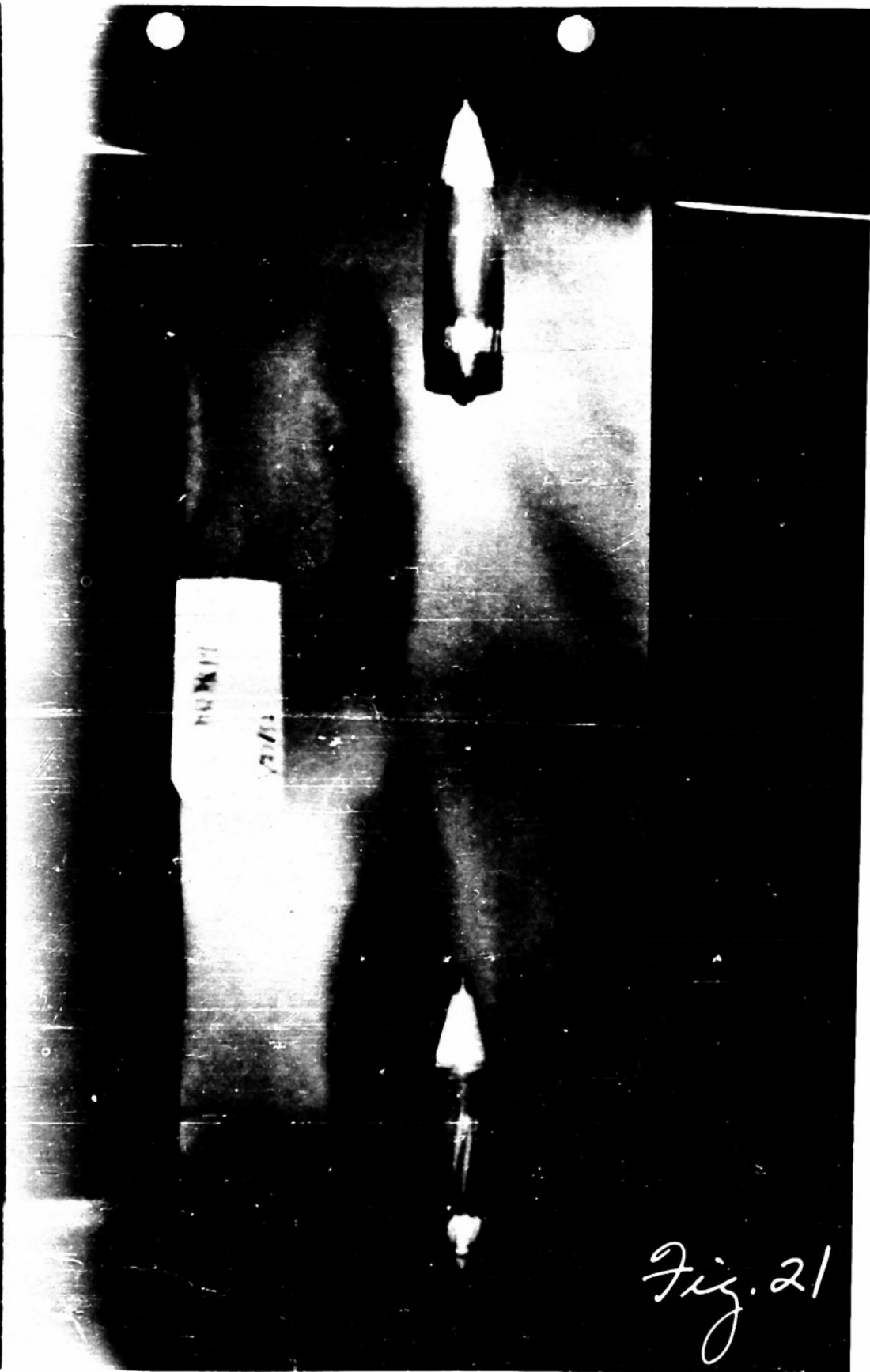
12-1

W9 62408

27 October 1952

Mark 30 Mod 3 ID Fuze with plaskon orive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 13. Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION



CONFIDENTIAL  
SECURITY INFORMATION

NP9 62409 27 October 1952  
Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 13.

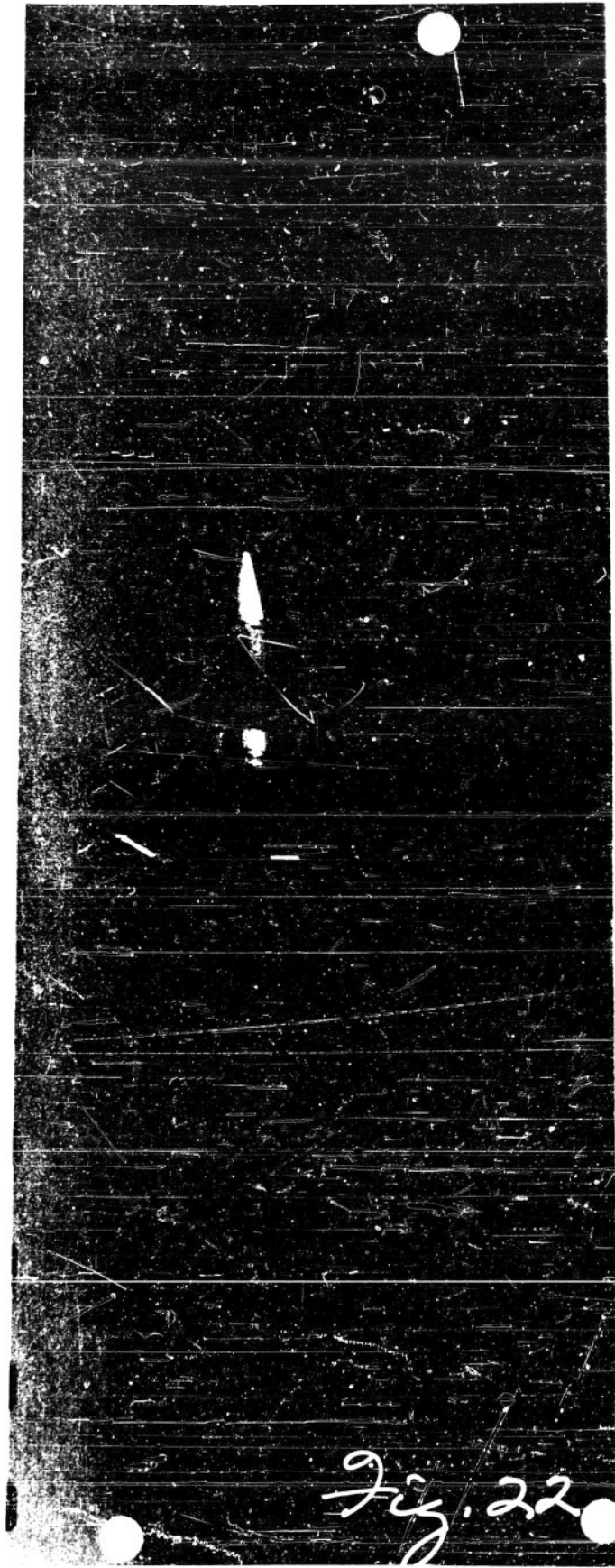


Fig. 22

12-1



NP-9 62410

27 October 1952

Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 14.  
Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION

NP-9 62410  
27/12

Fig. 23

IN 9 32411

Mark 30 Mod 3 PD Fuze with pleskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 14.

CONFIDENTIAL  
SECURITY INFORMATION

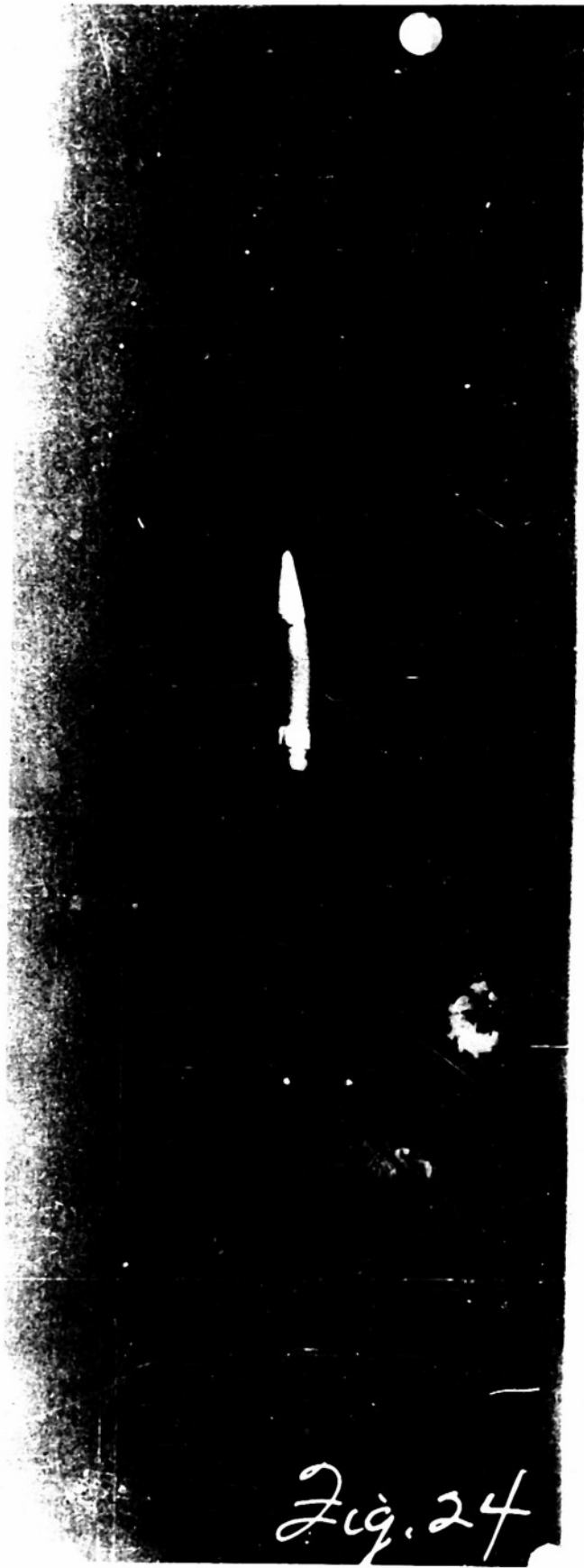


Fig. 24

17-1

NP9 6 412  
Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27  
Mod 2 projectile fired at service velocity. Photographed at 400 ft. range.  
Round No. 15. Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION



Fig 25

NF9. 62413

27 October 1952

Mark 30 Mod 3 PD Fuze with rag filled phenol. ogive assembled to 3"/50 Mark 27  
Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range.  
Round No. 15. Phase No. 1.

CONFIDENTIAL

SECURITY INFORMATION



Fig. 26

15-1



CONFIDENTIAL  
SECURITY INFORMATION

27 October 1952

NE9 62414

Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3" / 50 Mark 27  
Mod 2 projectile fired at service velocity. Photographed at 400 ft. range.  
Round No. 16. Phase No. 1.



Fig. 27

NA-02415

27 October 1952

Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3<sup>rd</sup>/50 Mark 27  
Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range.  
Round No. 16. Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION

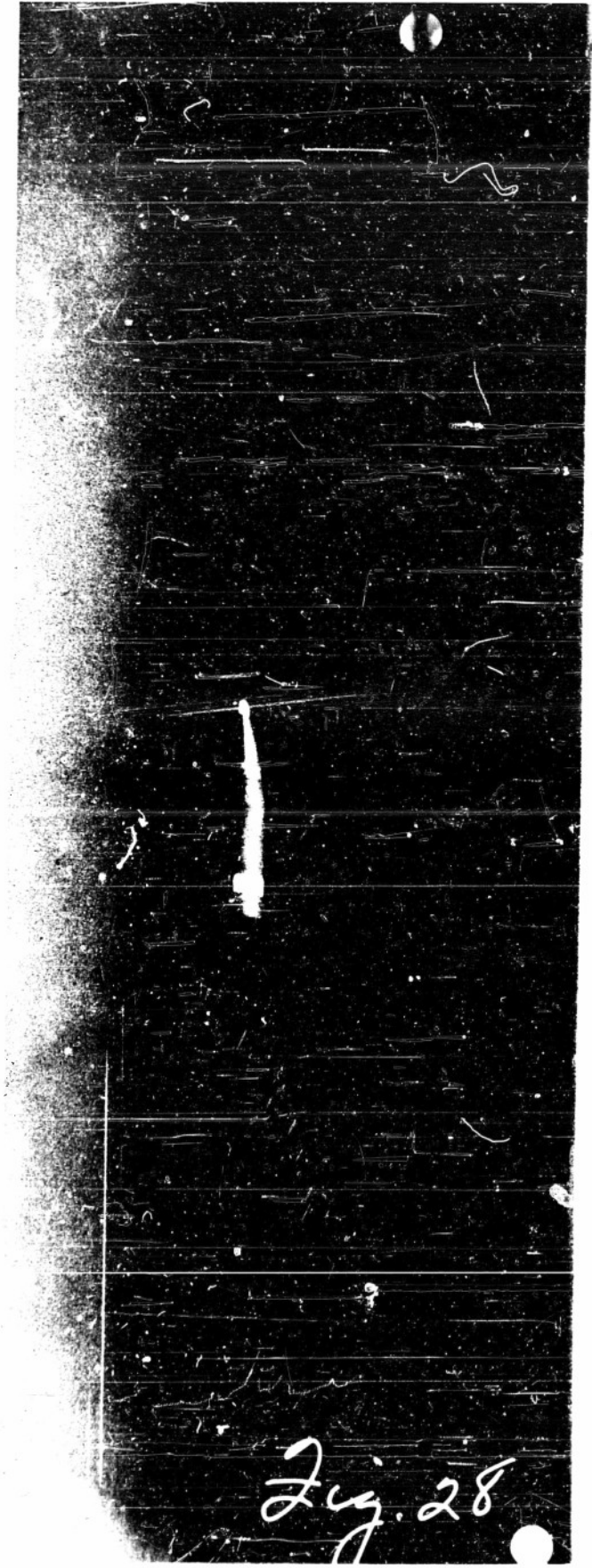


Fig. 28

16-1

NP9 62416

27 October 1952

CONFIDENTIAL  
SECURITY INFORMATION  
Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27  
Mod 2 projectile fired at service velocity. Photographed at 400 ft. range.  
Round No. 17. Phase No. 1.

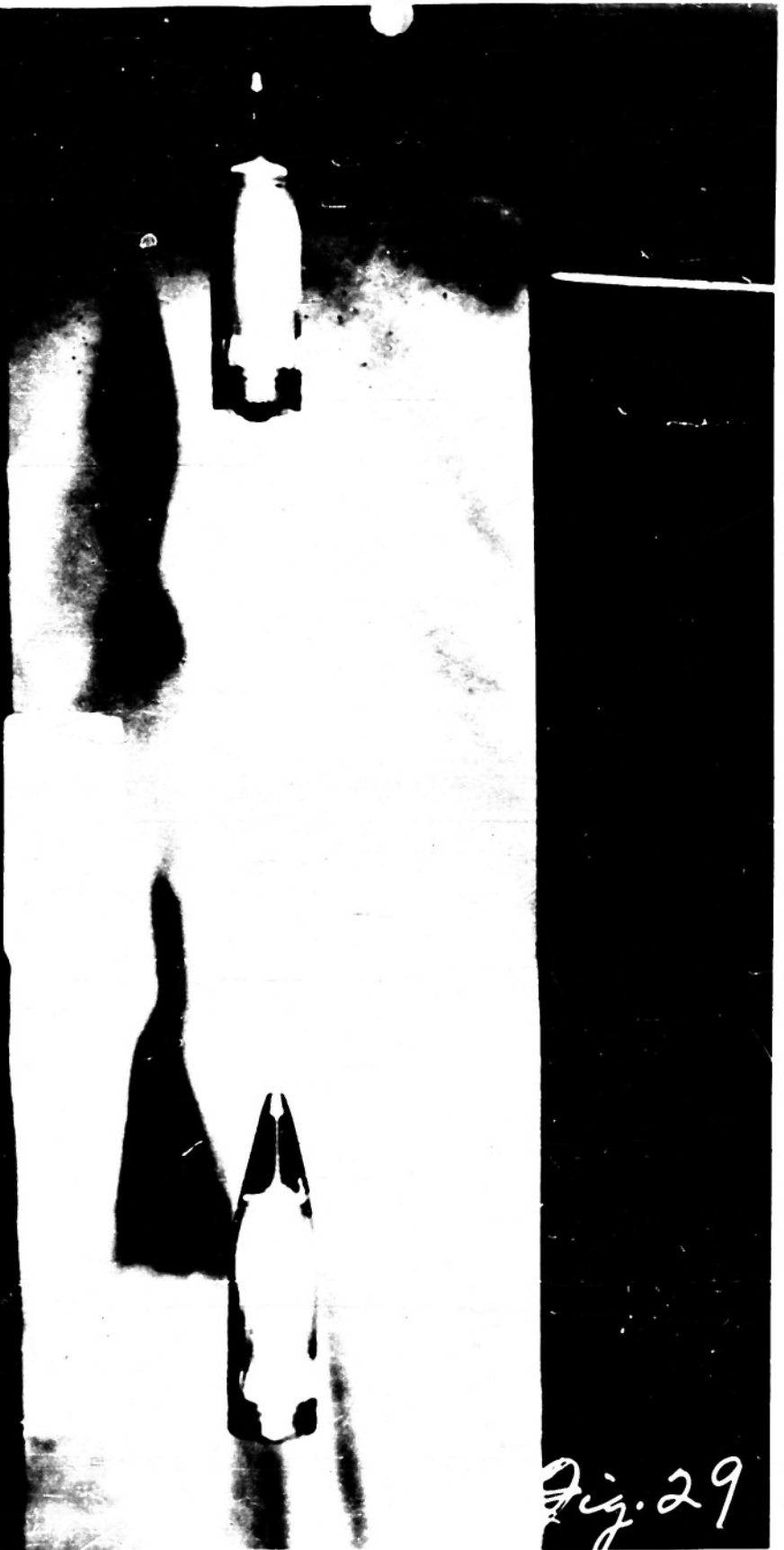


Fig. 29

NT9 62417

27 October 1952

Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27  
Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range.  
Round No. 17, Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION



Fig. 30

NP9 62418

27 October 1952

Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27  
Mod 2 projectile fired at service velocity. Photographed at 400 ft. range.  
Round No. 18. Phase No. 1.

CONFIDENTIAL

SECURITY INFORMATION



Fig 31

NP9 62419

27 October 1952

Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27  
Mod 2 Projectile fired at service velocity. Photographed at 1000 ft. range.  
Round No. 18. Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION

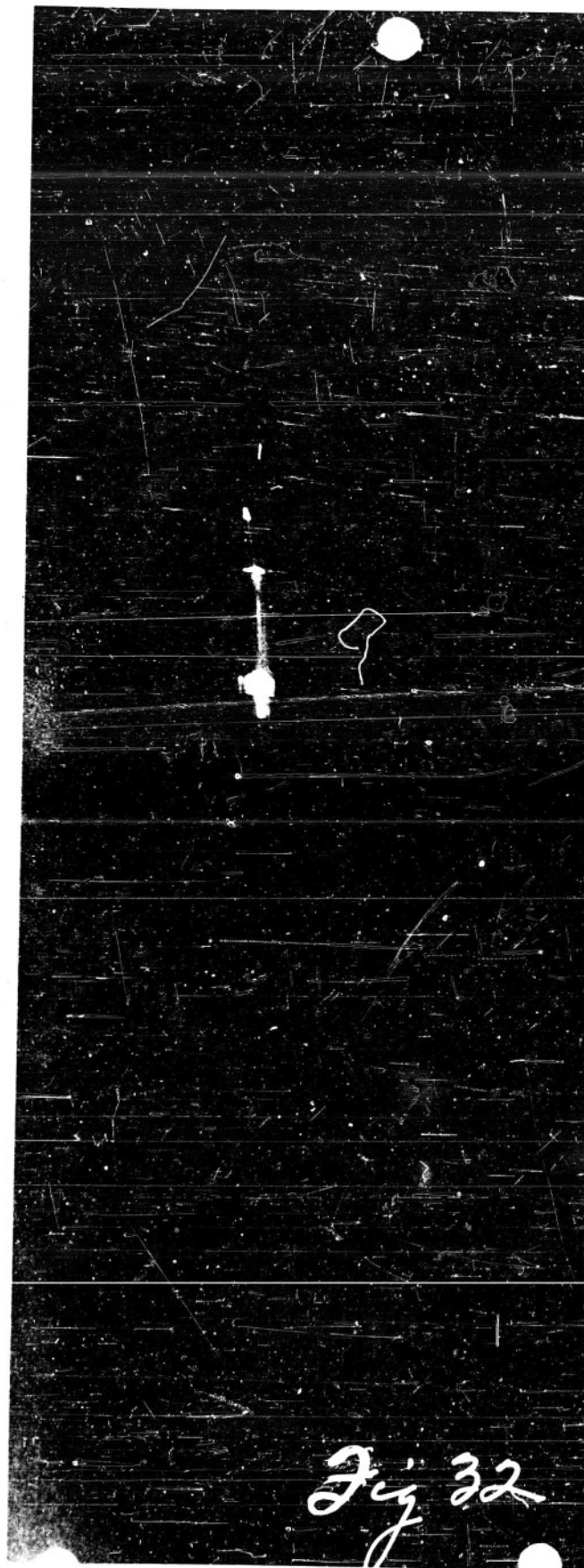


Fig 32



NP9 62420 27 October 1952  
Mark 30 Mod 3 PD Fuze with polyester glass filled ogive assembled to 3"/50  
Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft.  
range. Round No. 19. Phase No. 1.

CONFIDENTIAL

SECURITY INFORMATION

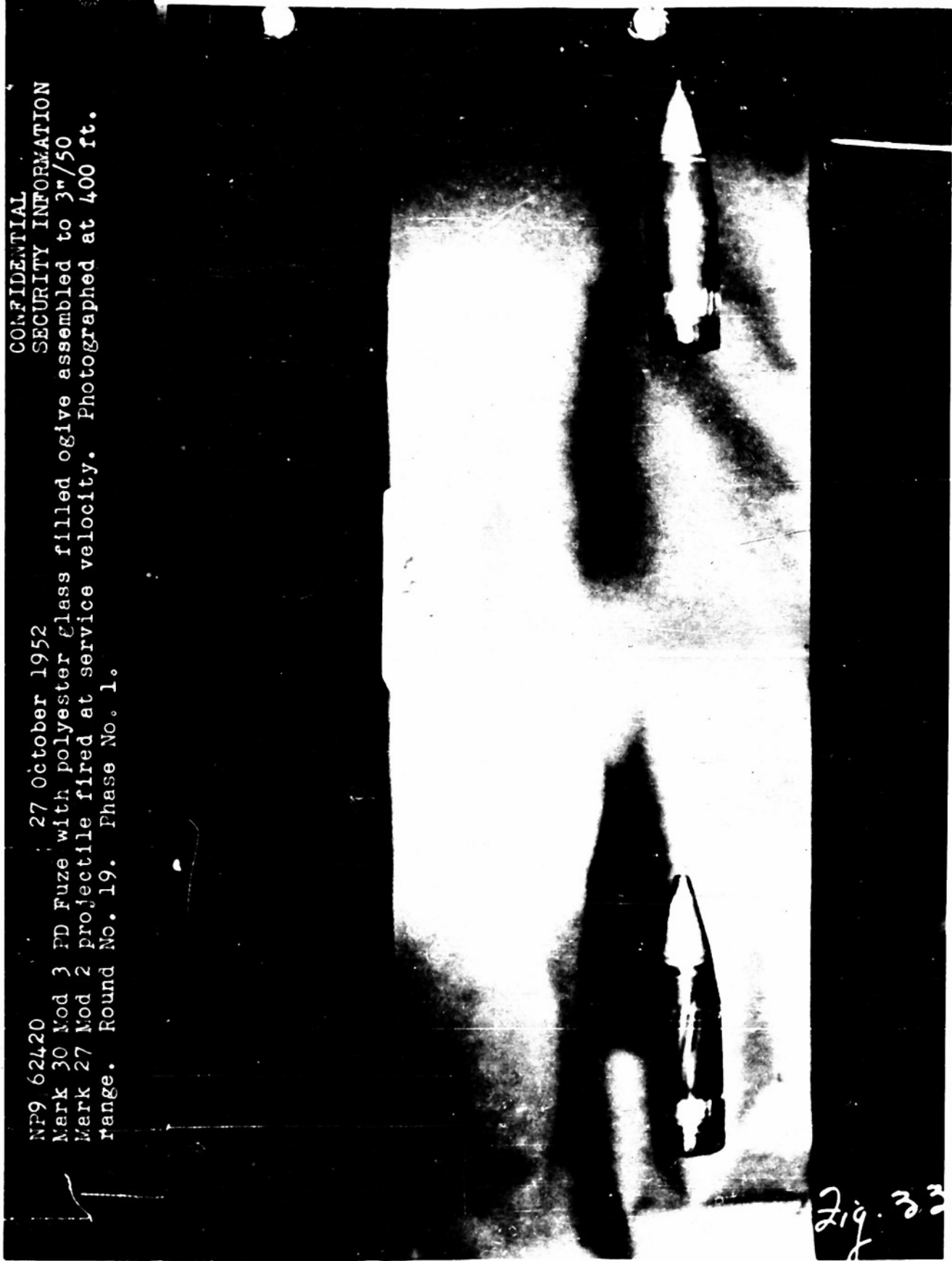


Fig. 33

NP9 62421

27 October 1952

Mark 30 Mod 3 PD Fuze with polyester glass filled ogive assembled to 3"/50  
Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft.  
range. Round No. 19. Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION

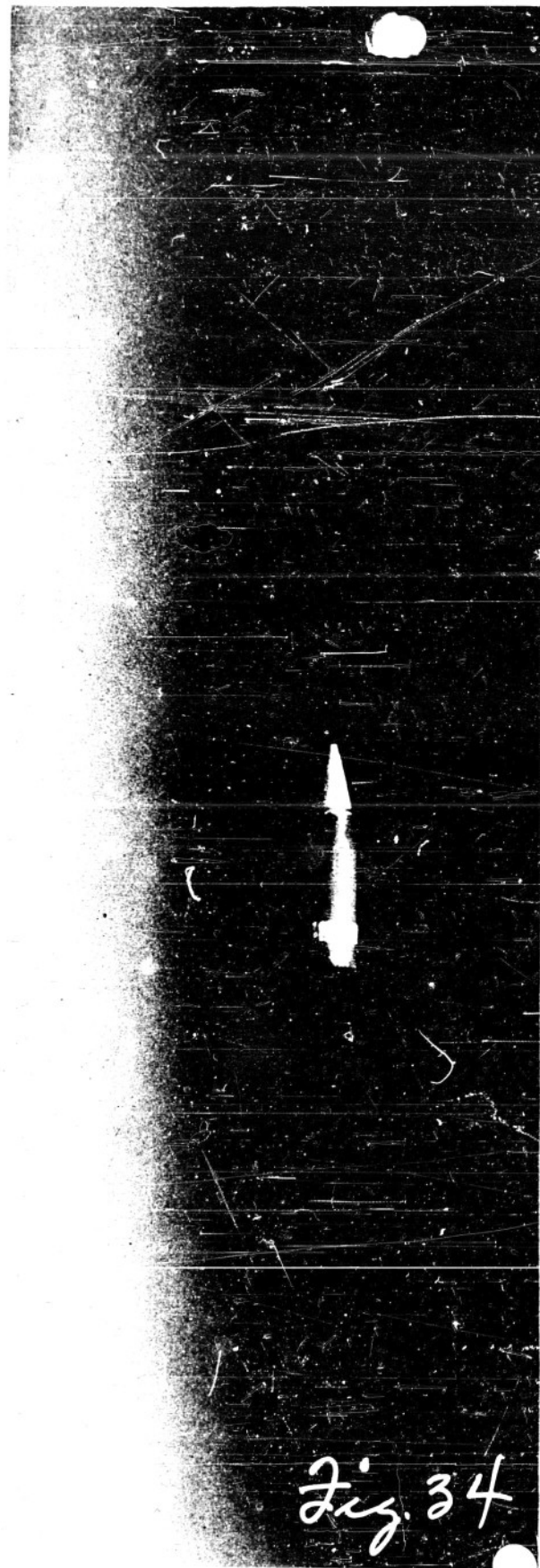


Fig. 34



CONFIDENTIAL  
SECURITY INFORMATION

NP9 62422 27 October 1952

Mark 30 Mod 3 PD Fuze with polyester glass filled ogive assembled to 3"/50  
Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft.  
range. Round No. 20. Phase No. 1.

1111  
1111

Fig. 35

NP9 62423 27 October 1952  
Mark 30 Mod 3 PD Fuze with polyester glass filled ogive assembled to 3"/50  
Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft.  
range. Round No. 20. Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION

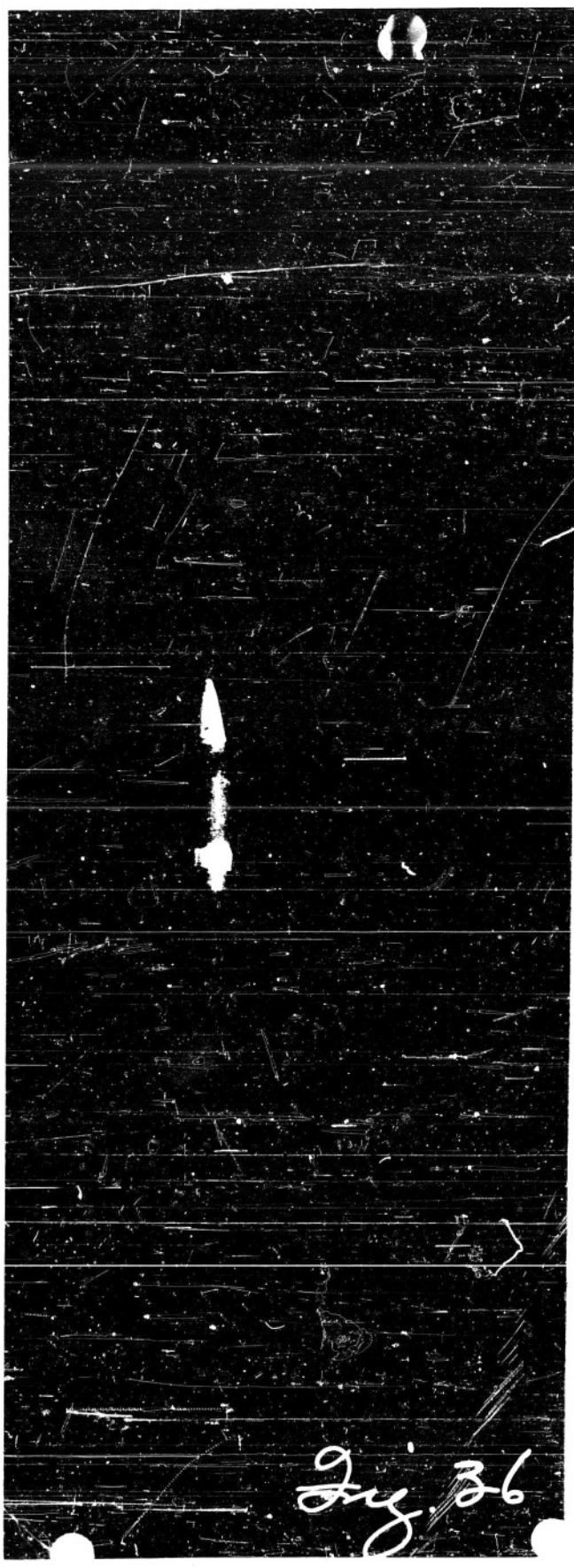


Fig. 36

NP9 62424 27 October 1952  
Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 21.

CONFIDENTIAL

SECURITY INFORMATION



Fig. 37

NP9 62425

Mark 30 Mod 3

27 October 1952

PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 pro-

jectile fired at service velocity. Photographed at 1000 ft. range. Round No. 21.

Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION

27 October 1952

PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 pro-

jectile fired at service velocity. Photographed at 1000 ft. range. Round No. 21.

Phase No. 1.



Fig. 38

CONFIDENTIAL  
SECURITY INFORMATION

27 October 1952  
Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 22.  
Phase No. 1.

NP9 62426

Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 22.  
Phase No. 1.

92751

Fig. 39



WFO 02427

27 October 1952

Mark 30 Mod 3 FD Fuze with plaskon give assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 22. Case No. 1.

CONFIDENTIAL  
SECURITY INFORMATION

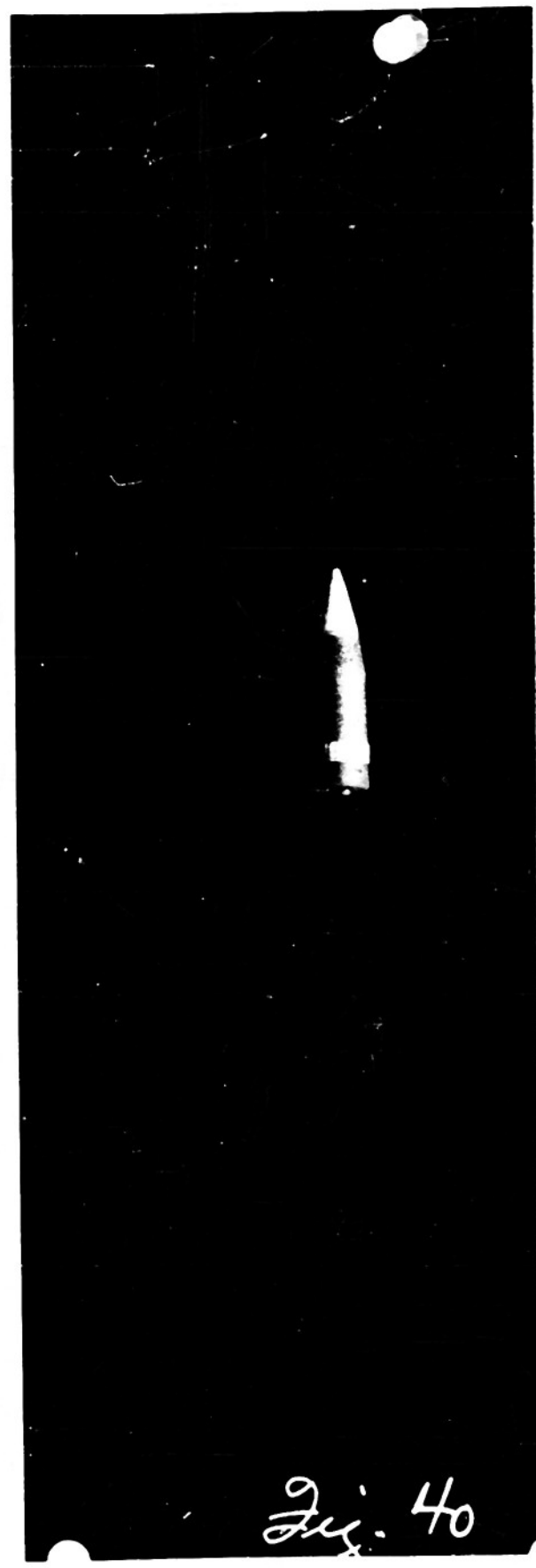


Fig. 40

22-2

NP 62422 27 October 1952  
Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2  
projectile fired at service velocity. Photographed at 400 ft. range. Round No. 23.  
Phase No. 1.

CONFIDENTIAL

SECURITY INFORMATION

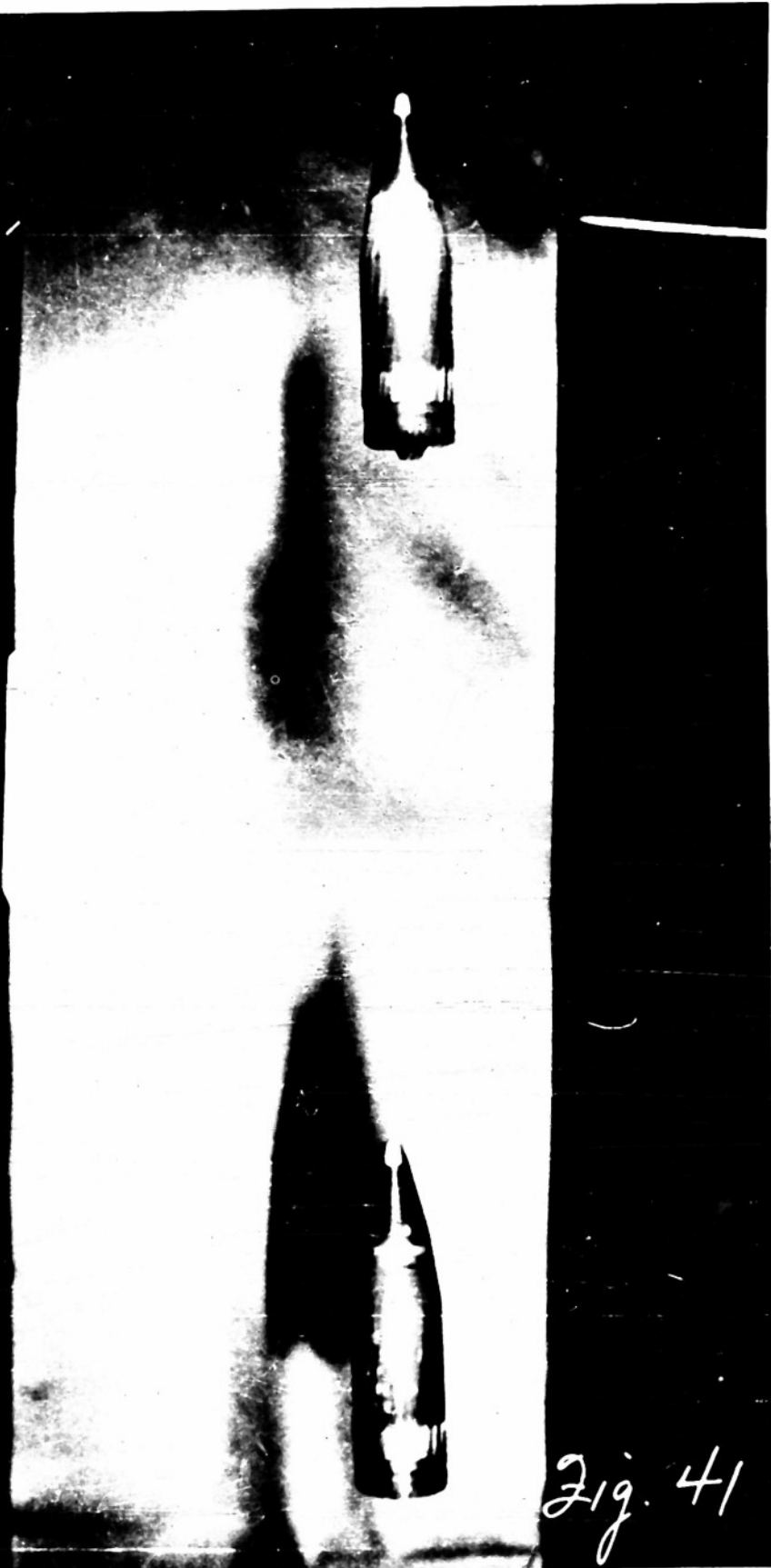


Fig. 41

TP9 62429 27 October 1952  
Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2  
projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 23.  
Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION



23-10



CONFIDENTIAL  
SECURITY INFORMATION  
27 October 1952  
MPG 62430  
Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2  
projectile fired at service velocity. Photographed at 400 ft. range. Round No. 24.  
Phase No. 1.



Fig. 43

NP9 62431

27 October 1952

Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 24. Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION



*Fig 44*

*104-1*

NP9 62432

27 October 1952

Mark 30 Mod 3 PD Fuze with polyester glass filled ogive assembled to 3"/50 Mark 27  
Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 25.  
Phase No. 1.

CONFIDENTIAL

SECURITY INFORMATION

NP9 62432

Fig 45

PP9 62433

27 October 1952  
Mark 30 Mod 3 PD Fuze with polyester glass filled ogive assembled to 3"/50 Mark 27  
Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 25.  
Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION

Fig 46

25-1-52

NP9 62434

27 October 1952

Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile  
fired at service velocity. Photographed at 400 ft. range. Round No. 26. Phase No. 1.

CONFIDENTIAL

SECURITY INFORMATION

10-28-52

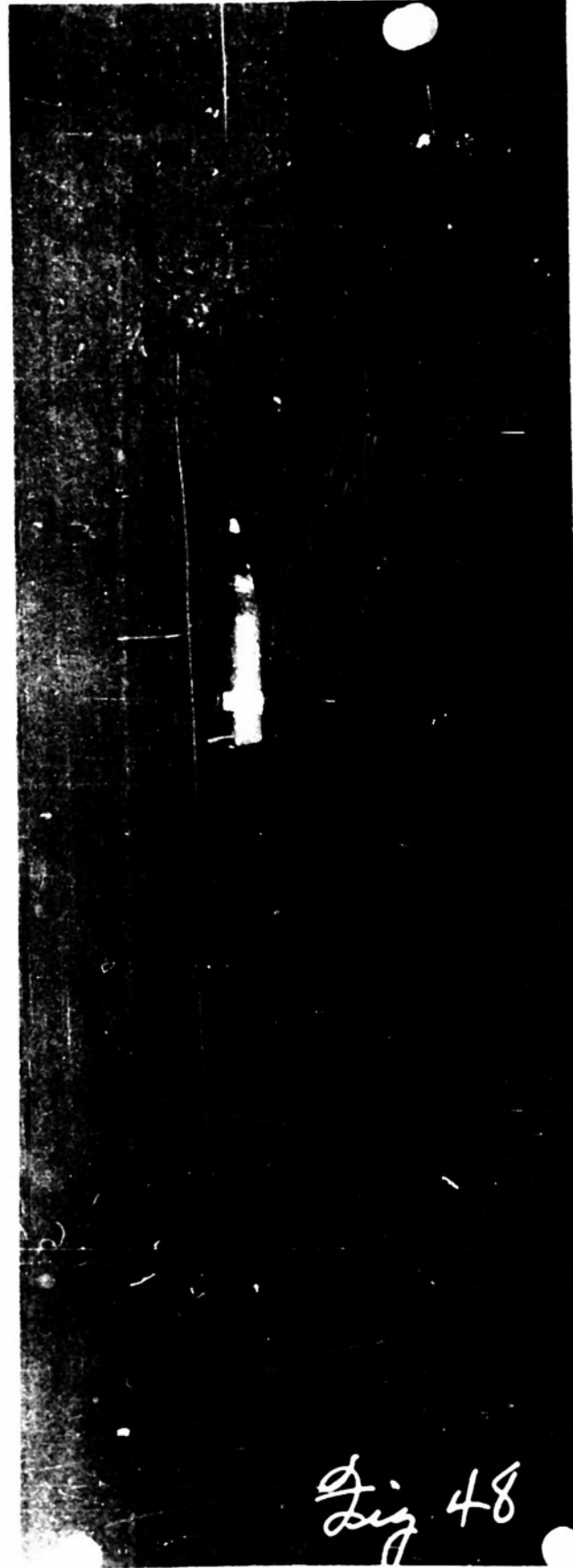
Fig 47

PP9 62435

27 October 1952

Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile  
fired at service velocity. Photographed at 1000 ft. range. Round No. 26. Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION



*Fig 48*

26-1

MP 62436 27 October 1952  
Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile  
fired at service velocity. Photographed at 400 ft. range. Round No. 27. Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION



Fig 49

NP9 62437 27 October 1952  
Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile  
fired at service velocity. Photographed at 1000 ft. range. Round No. 27. Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION

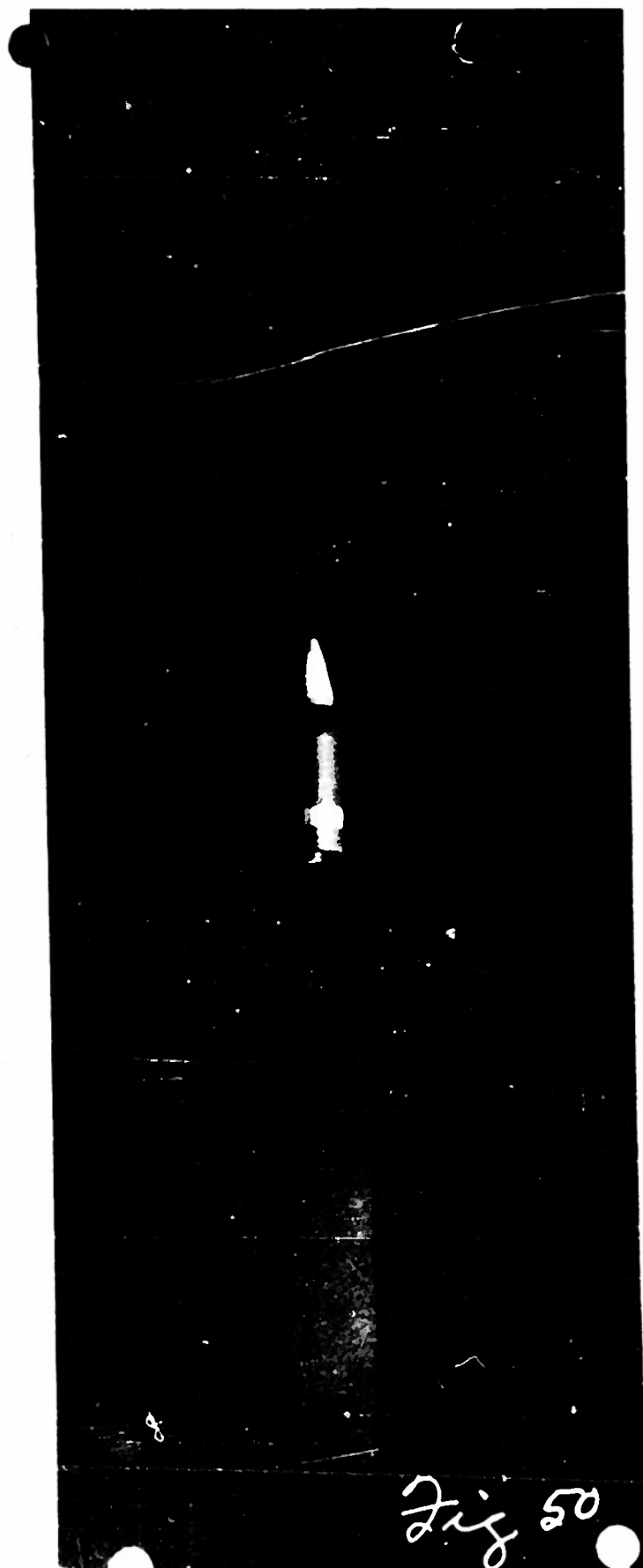


Fig 50

27-1



NP9 62438  
27 October 1952  
CONFIDENTIAL  
SECURITY INFORMATION  
Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 28. Phase No. 1.



Fig. 51

NP9 62439

27 October 1952

CONFIDENTIAL  
SECURITY INFORMATION ✓  
Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2  
projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 28.  
Phase No. 1.

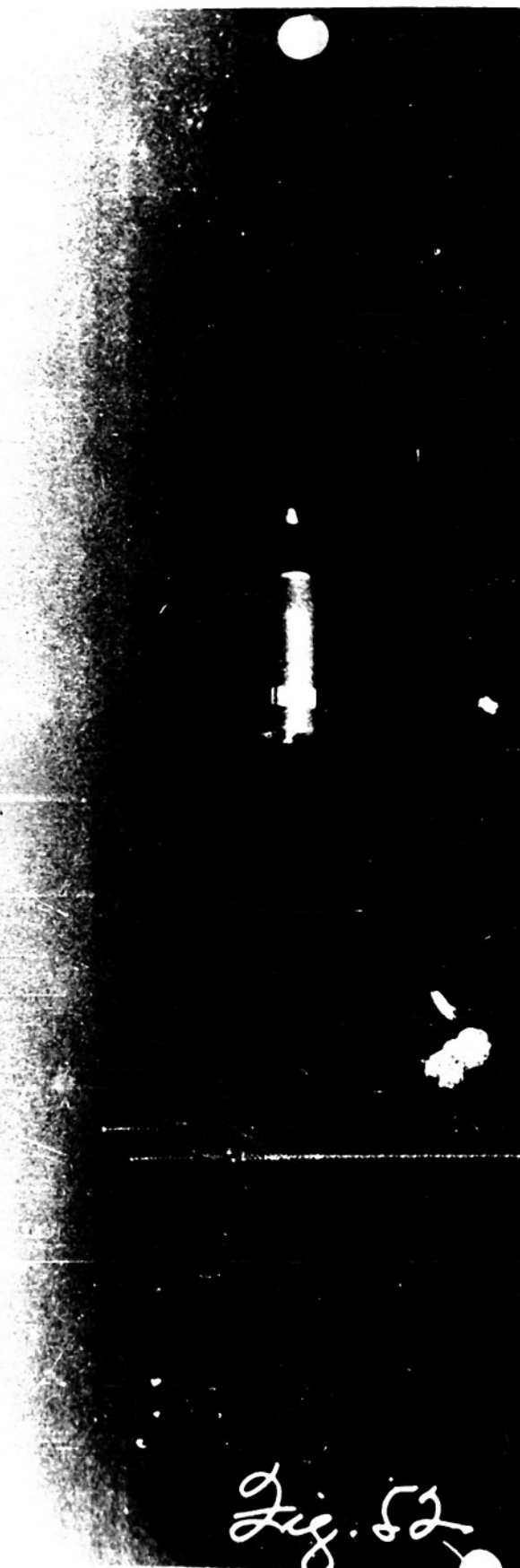


Fig. 52

28--

NP9 62440  
27 October 1952  
Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 29.  
Phase No. 1.

CONFIDENTIAL

SECURITY INFORMATION



Fig. 53

MP9 62441

27 October 1952

Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27  
Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range.  
Round No. 29. Phase No. 1.

CONFIDENTIAL

SECURITY INFORMATION

Fig. 54

29-2

mp9 62442

27 October 1952

CONFIDENTIAL  
SECURITY INFORMATION  
Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile  
fired at service velocity. Photographed at 400 ft. range. Round No. 30. Phase No. 1.



*Fig. 55*

NP9 62443

27 October 1952

CONFIDENTIAL  
SECURITY INFORMATION  
Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 30. Phase No. 1.



*Figure 56*

MP9 62444

29 October 1952

Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3<sup>rd</sup>/50 Mark 27 Mod 2 projectile  
fired at service velocity. Photographed at 400 ft. range. Round No. 31. Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION

100/100/100/100  
100/100/100/100  
9/23/52

Fig. 57

NP9 62445  
Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile  
fired at service velocity. Photographed at 1000 ft range. Round No. 31. Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION

29 October 1952



*Fig. 51*

31-1



NP9 62446  
Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 32.  
Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION

29 October 1952

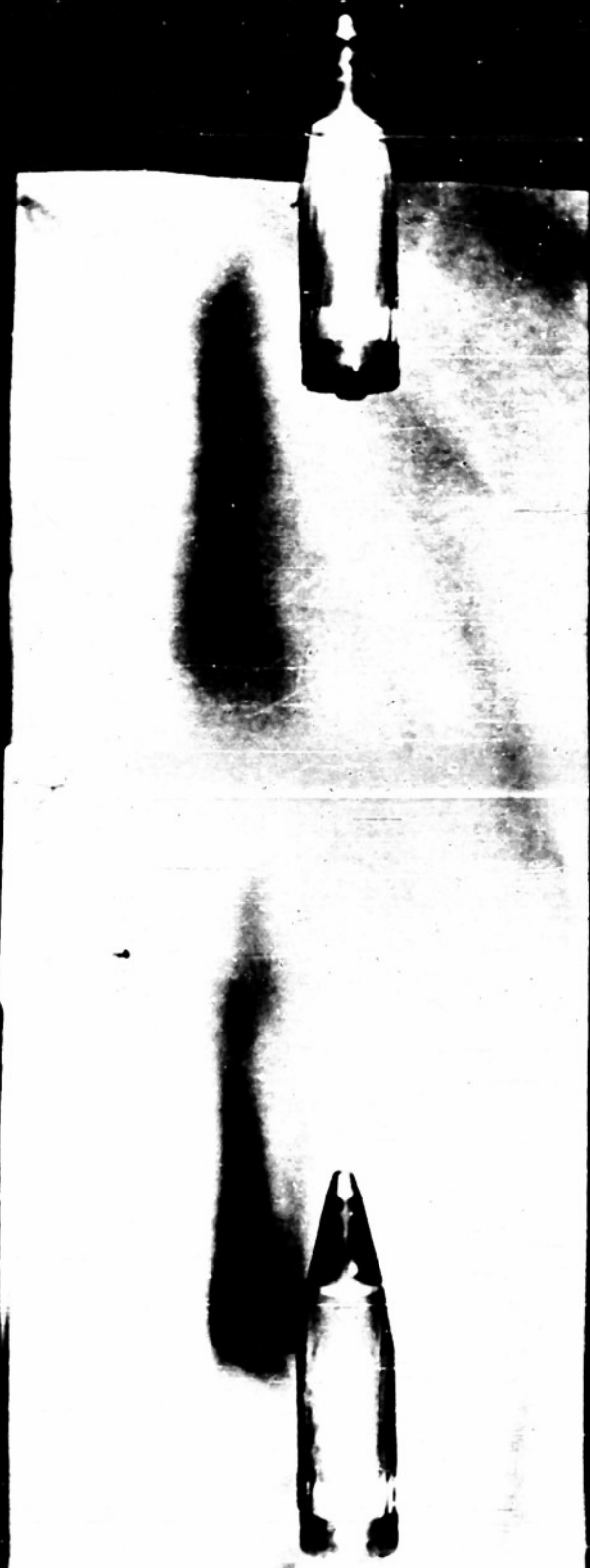


Fig 59

NP9 62447

29 October 1952

Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 32. Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION



*Fig. 60*

32-1

NP9 62448

29 October 1952

Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 33. Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION



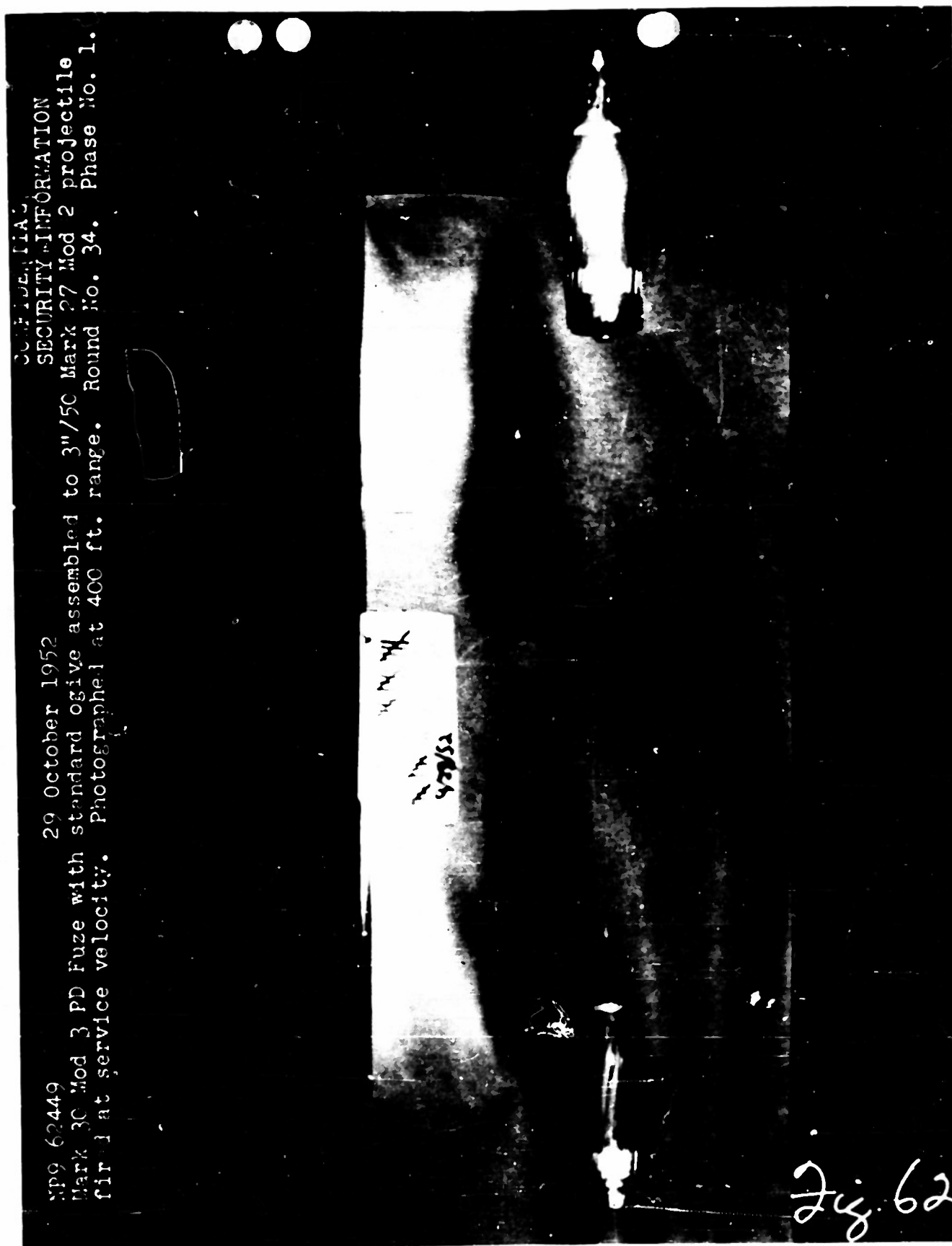
Fig. 61

22-2

XP9 62449

29 October 1952

CONFIDENTIAL  
SECURITY INFORMATION  
Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile  
fired at service velocity. Photographed at 400 ft. range. Round No. 34. Phase No. 1.



PP9 62450

29 October 1952

CONFIDENTIAL  
SECURITY INFORMATION  
Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile  
fired at service velocity. Photographed at 1000 ft. range. Round No. 34. Phase No. 1.



37-2

29 October 1952

CONFIDENTIAL  
SECURITY INFORMATION

Fig. 64

NP9 62452

29 October 1952

Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile  
fired at service velocity. Photographed at 1000 ft. range. Round No. 35. Phase No. 1.

CONFIDENTIAL

SECURITY INFORMATION



Fig. 65

CONFIDENTIAL  
SECURITY INFORMATION

NP9 62453 29 October 1952  
Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2  
projectile fired at service velocity. Photographed at 400 ft. range. Round No. 36.  
Phase No. 1.



Fig. 66



WP9 62454

29 October 1952

CONFIDENTIAL  
SECURITY INFORMATION  
Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 36 Phase No. 1.



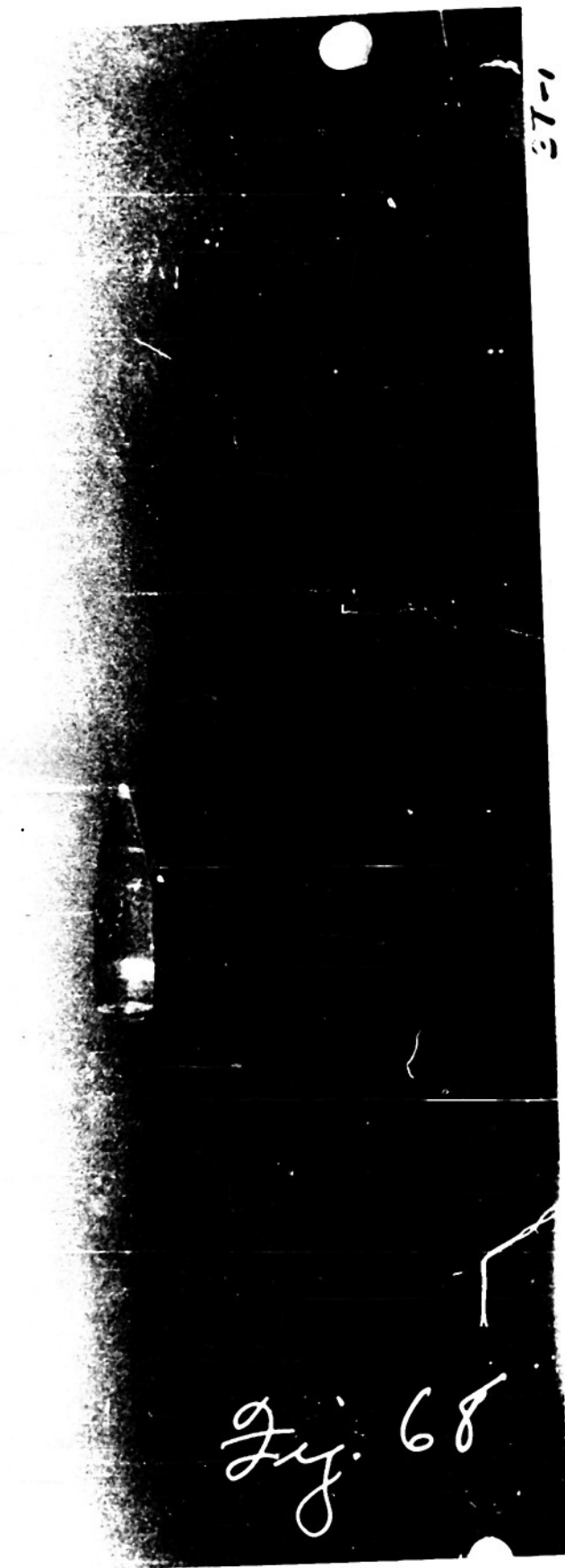
Fig. 67

36-1

NP. 62455  
Mark 30 Mod 3 PD Fuze With cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2  
projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 37.  
Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION

29 October 1952



*Fig. 68*

37-1

CONFIDENTIAL  
SECURITY INFORMATION

MP9 62456 29 October 1952  
Mark 30 Mod 3 PD Fuze with polyester glass  
Mod 2 projectile fired at service velocity.  
Phase No. 1.

filled ogive assembled to 3"/50 Mark 27.  
Photographed at 1000 ft. range. Round No. 3

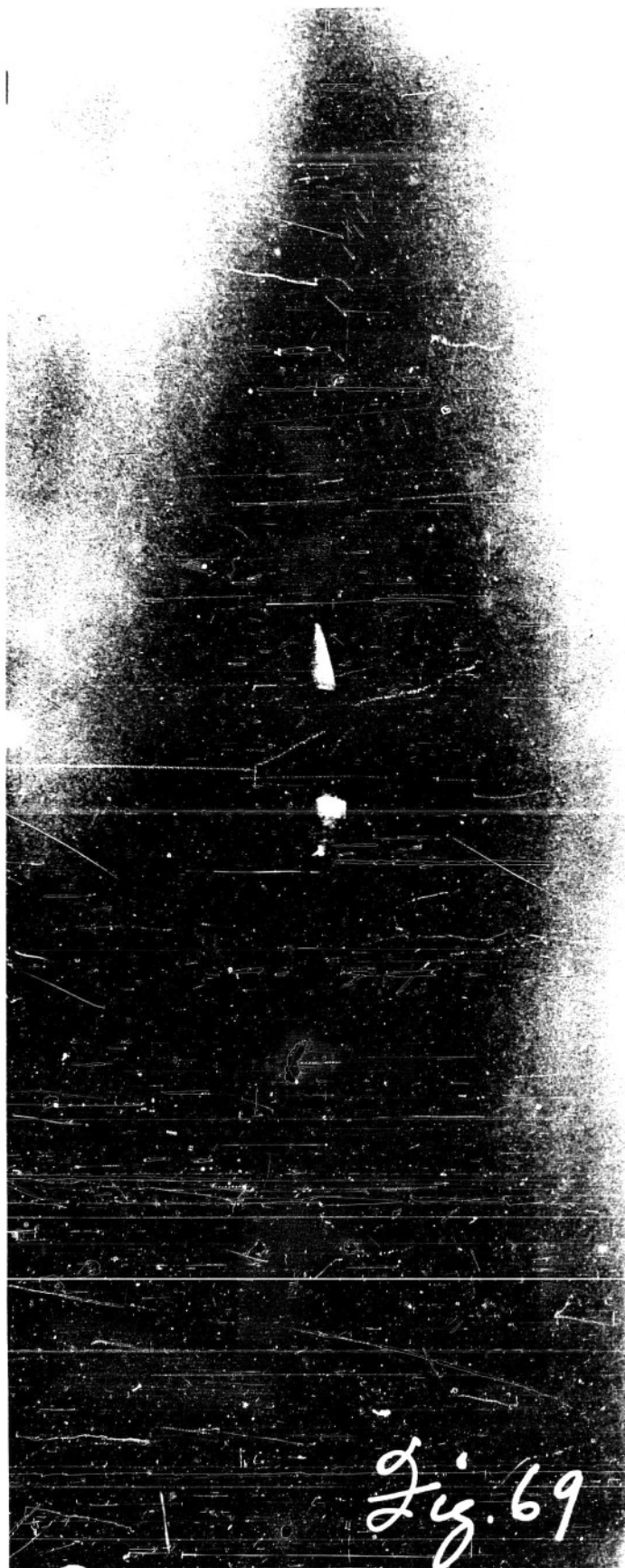


Fig. 69

38-1

NP9 62457

Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3" / 50 Mark 27 Mod 2 projectile  
fired at service velocity. Photographed at 1000 ft. range. Round No. 39. Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION

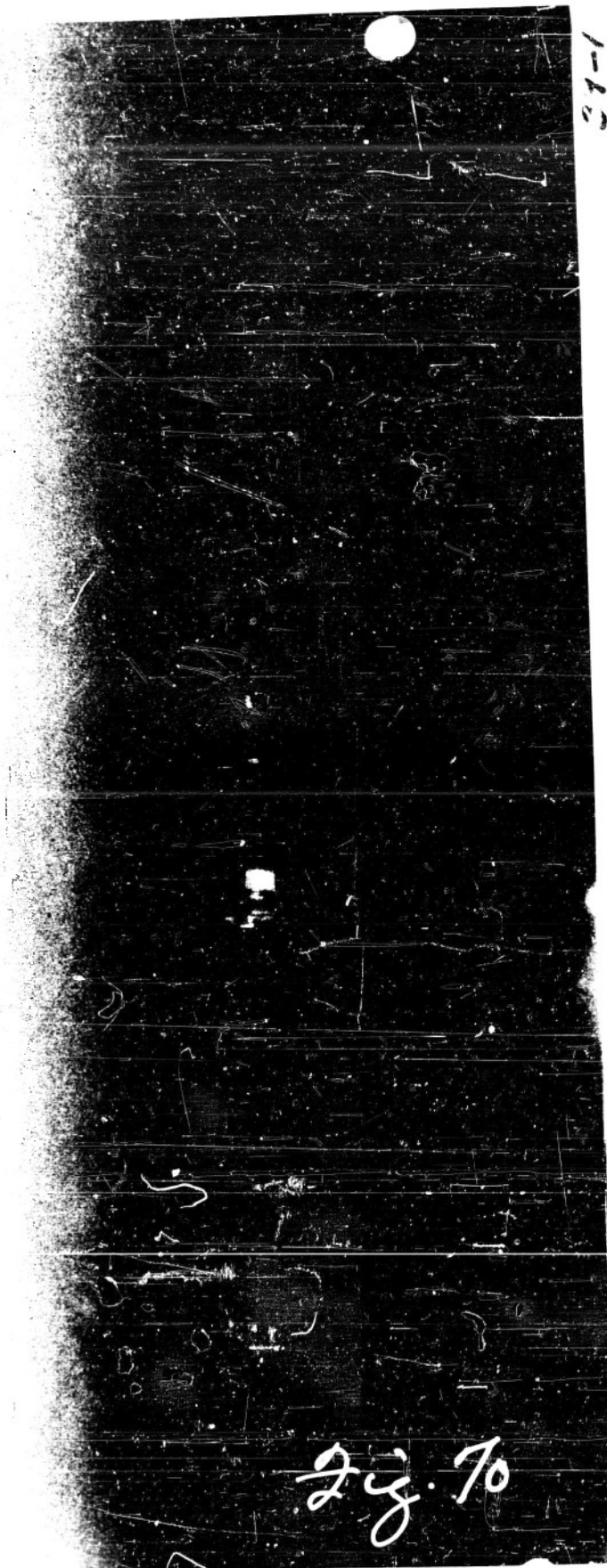


Fig. 70

27-1

NP9 62458

30 October 1952

Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile  
fired at service velocity. Photographed at 400 ft. range. Round No. 40. Phase No. 1.

CONFIDENTIAL

SECURITY INFORMATION



*Figure 71*

NP9 62459

30 October 1952

Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile  
fired at service velocity. Photographed at 1000 ft. range. Round No. 40. Phase No. 1.

CONFIDENTIAL

SECURITY INFORMATION

Fig. 72

40



CONFIDENTIAL  
SECURITY INFORMATION  
30 October 1952  
NP9 62460  
Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2  
projectile fired at service velocity. Photographed at 400 ft. range. Round No. 41.  
Phase No. 1.



Fig. 13

NP9 624G1.

30 October 1952

Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile-fired at service velocity. Photographed at 1000 ft. range. Round No. 41.  
Phase No. 1.

CONFIDENTIAL  
SECURITY INFORMATION



*Fig. 74*

41



MP9 62462

30 October 1952

CONFIDENTIAL  
SECURITY INFORMATION  
Mark 30 Mod 3 PD Fuz with cord filled pherol ogive assembled to 3"/50 Mark 27 Mod 2  
projectile fired at service velocity. Photographed at 400 ft. range. Round No. 42.  
Phase No. 1.



Fig. 75

MP9 62463

30 October 1952

Mark 30 Mod B PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 42.

Phase No. 1.

SECURITY INFORMATION

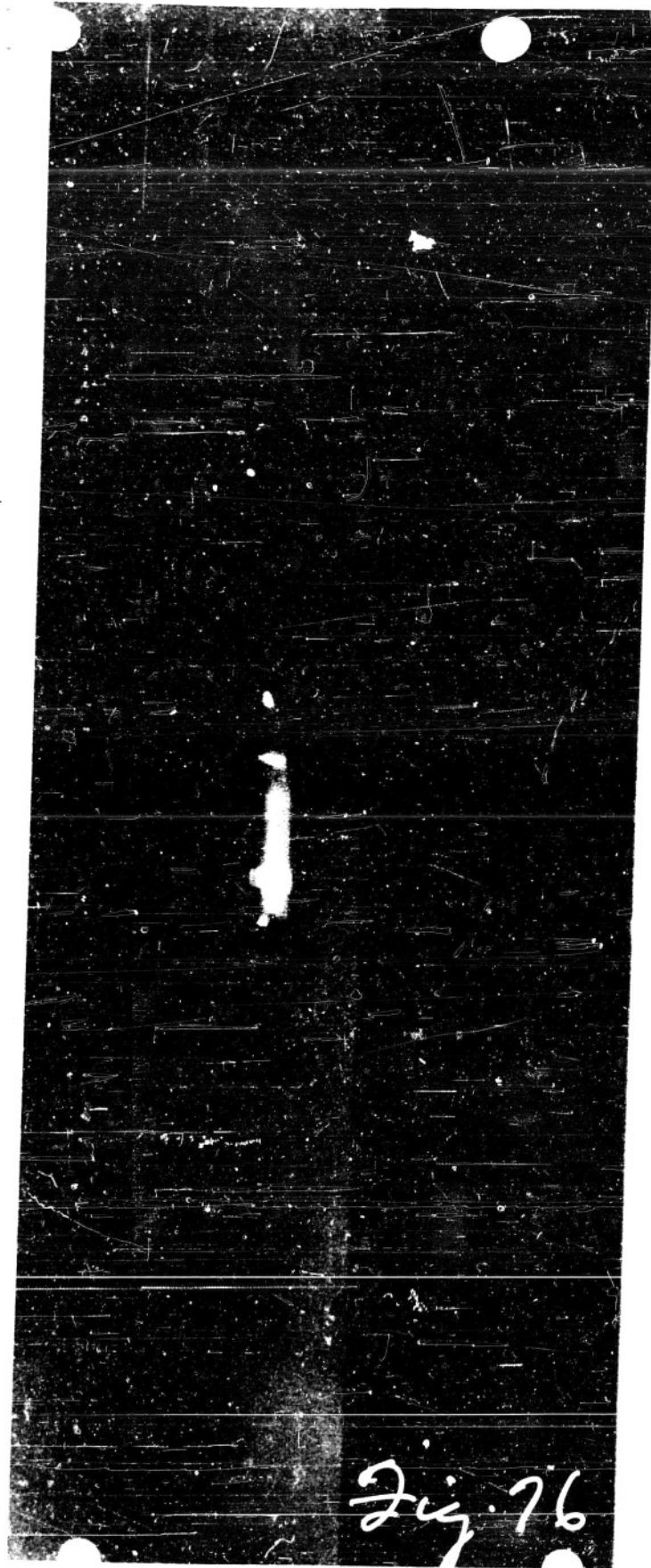


Fig. 76

42

NP9 62464 30 October 1952  
CONFIDENTIAL  
SECURITY INFORMATION  
Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 2 projectile  
fired at service velocity. Photographed at 400 ft. range. Round No. 43. Phase No. 1.



Fig 77

CONFIDENTIAL  
SECURITY INFORMATION

30 October 1952

Mark 30 Mod 3 PD gun with standard ogive assembled to 3"/50 Mark 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 43. Phase No. 1.



Fig. 78

43

NP9 62466

30 October 1952

CONFIDENTIAL  
SECURITY INFORMATION  
Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 2 projectile  
fired at service velocity. Photographed at 400 ft. range. Round No. 44. Phase No. 1.



Fig. 79

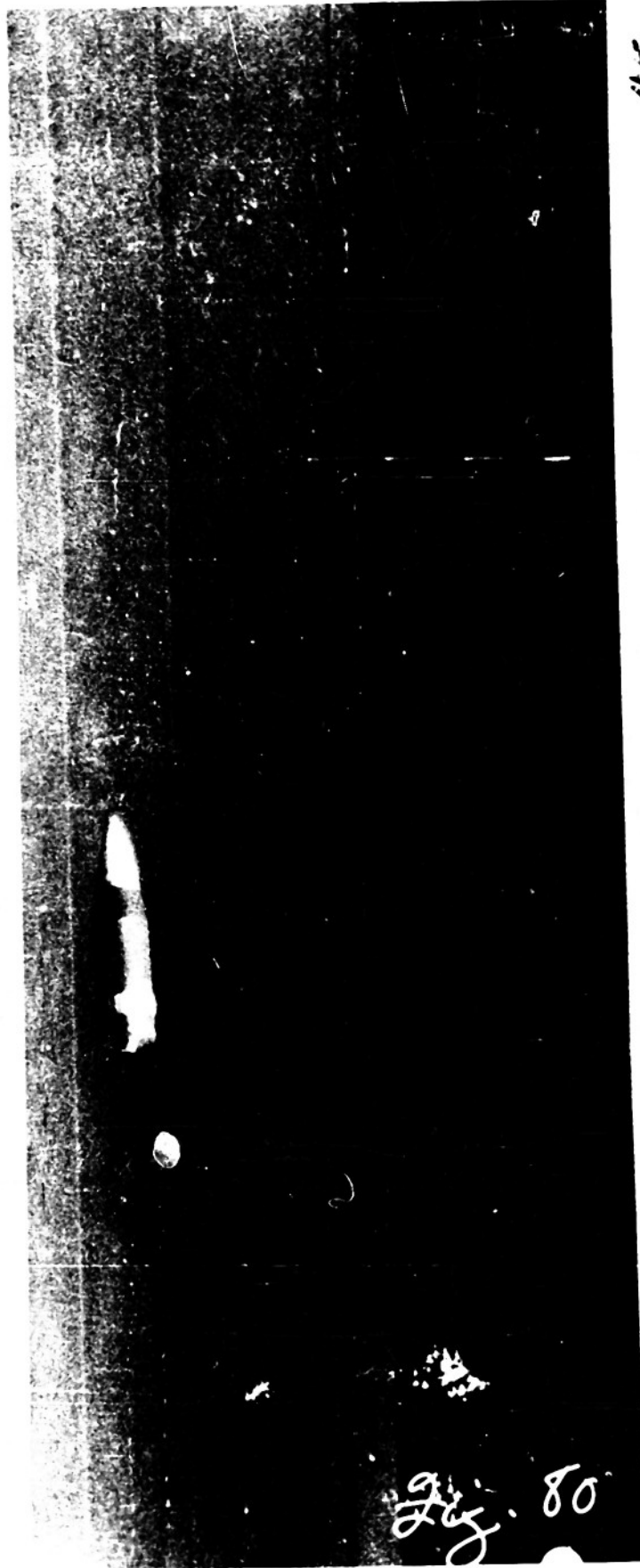
NP9 62467

30 October 1952

Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile  
fired at service velocity. Photographed at 1000 ft. range. Round No. 44. Phase No. 1.

CONFIDENTIAL

SECURITY INFORMATION



24.80

44

MP9 62468

30 October 1952

CONFIDENTIAL  
SECURITY INFORMATION  
Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2  
projectile fired at service velocity. Photographed at 400 ft. range. Round No. 45.  
Phase No. 1.



Fig. 81



MP9 62469

30 October 1952

Mark 30 Mod 3 PD Fuze with rag filled phenol olive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 45.

CONFIDENTIAL

SECURITY INFORMATION

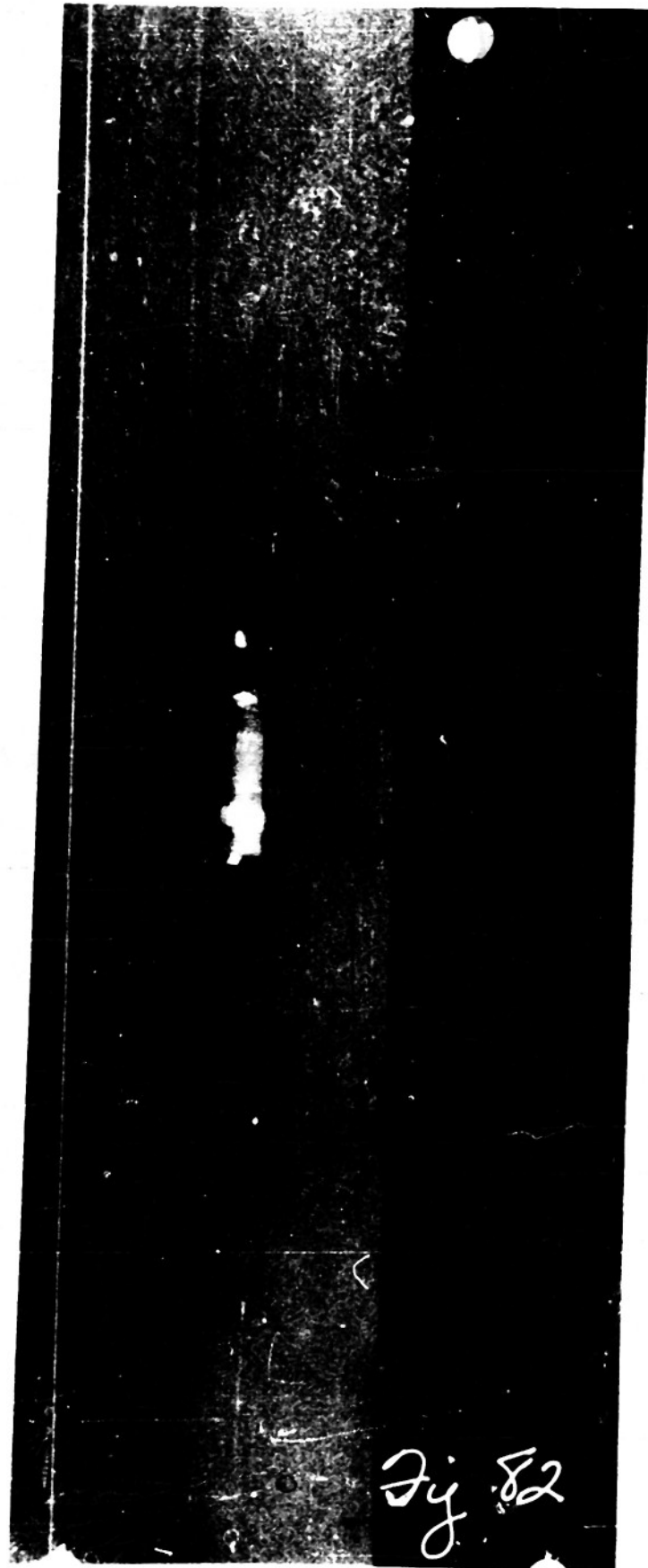


Fig 82



NP9-62470

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3<sup>rd</sup>/50 Mark 27 Mod 4 projectile  
fired at service pressure. Photographed at 1000 ft. range. Round No. 2.  
Phase No. 2.

CONFIDENTIAL  
SECURITY INFORMATION

Rd 1

NP9-62471

4 November 1952

CONFIDENTIAL  
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure. Photographed at 400 ft. range. Round No. 2.  
Phase No. 2.



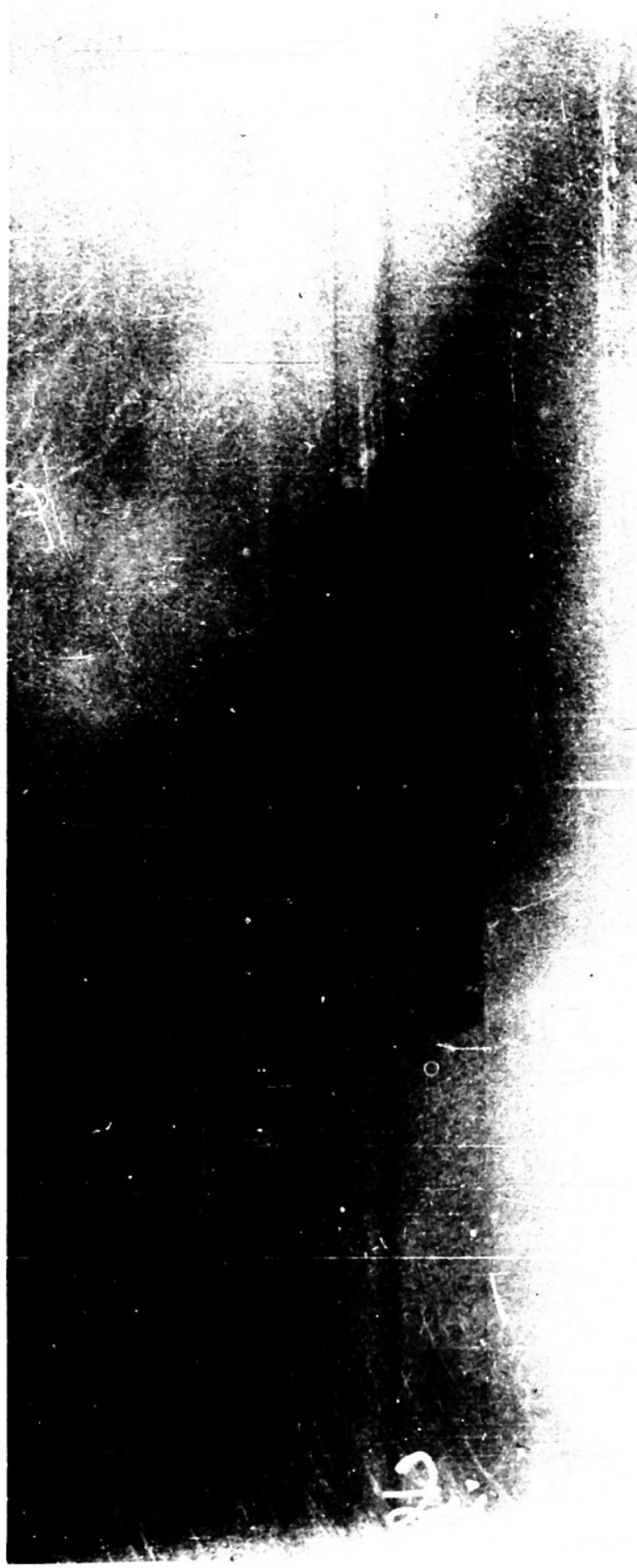
NP9-62472

4 November 1952

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at service pressure. Photographed at 1000 ft. range. Round No. 2.  
Phase No. 2.

CONFIDENTIAL

SECURITY INFORMATION



NP0-6-473

4 November 1952

CONFIDENTIAL  
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 400 ft. range. Round No. 3.  
Phase No. 2.

11/11



Fig 86

NP9-62474

4 November 1952  
Mark 30 Mod 3 PD Fuse, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 1000 ft. range. Round No. 3.  
Phase No. 2.

CONFIDENTIAL

SECURITY INFORMATION

Rd #3



NP9-62475

4 November 1952

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 400 ft. range. Round No. 4.  
Phase No. 2.

CONFIDENTIAL

SECURITY INFORMATION

11-4-52  
Rdr/III



Fig 88

NP9-62476

4 November 1952

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 1000 ft. range. Round No. 4.  
Phase No. 2.

CONFIDENTIAL

SECURITY INFORMATION



NP9-62477

4 November 1952  
Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at service pressure. Photographed at 400 ft. range. Round No. 5.  
Phase No. 2.

CONFIDENTIAL  
SECURITY INFORMATION



Fig 90



NP9-62478

4 November 1952

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at service pressure. Photographed at 1000 ft. range. Round No. 5.  
Phase No. 2.

CONFIDENTIAL

SECURITY INFORMATION

Rd #5



NP9-62479

4 November 1952

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 1000 ft. range. Round No. 6.  
Phase No. 2.

CONFIDENTIAL  
SECURITY INFORMATION



Fig 92

Np9-62480

4 November 1952

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 1000 ft. range. Round No. 6.  
Phase No. 2.

CONFIDENTIAL

SECURITY INFORMATION

Rd # 6

NP9-62481  
Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 400 ft. range. Round No. 7.  
Phase No. 2.

CONFIDENTIAL

SECURITY INFORMATION



Fig. 94

NP9-62482-

4 November 1952

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 1000 ft. range. Round No. 7.  
Phase No. 2.

CONFIDENTIAL  
SECURITY INFORMATION

Rd# 7



NP9-62483

Mark 30 Mod 3 PD Fuze, Lot No. EW-1078B assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at service pressure. Photographed at 400 ft. range. Round No. 2.

CONFIDENTIAL  
SECURITY INFORMATION



Fig 96

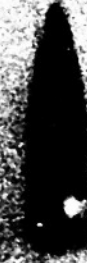
NP9-62484

4 November 1952

Mark 3G Mod 3 PD Fuze, Lot No. EW-1078B assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at service pressure. Photographed at 1000 ft. range. Round No. 8.  
Phase No. 2.

CONFIDENTIAL  
SECURITY INFORMATION

RV-8



NP9-62485

4 November 1952  
Mark 30 Mod 3 PD Fuze, Lot No. EW-1078B assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 400 ft. range. Round No. 9.  
Phase No. 2.

CONFIDENTIAL  
SECURITY INFORMATION

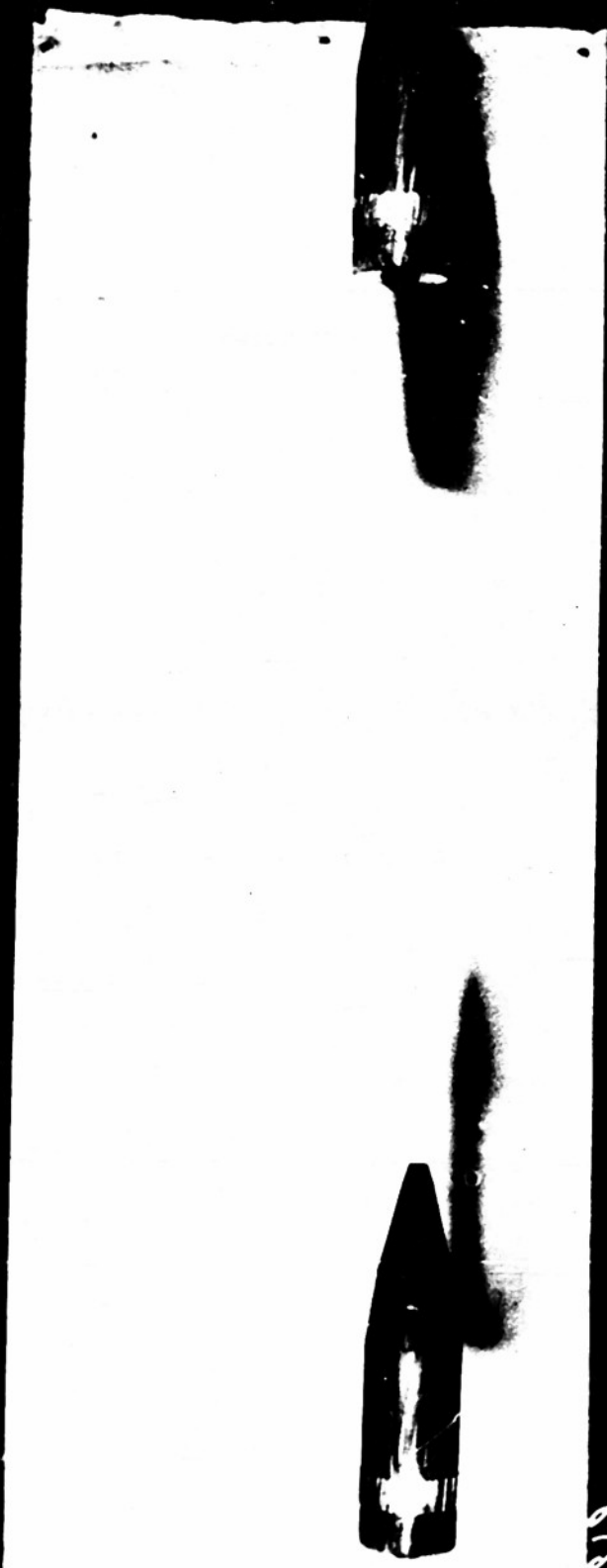


Fig 9.8

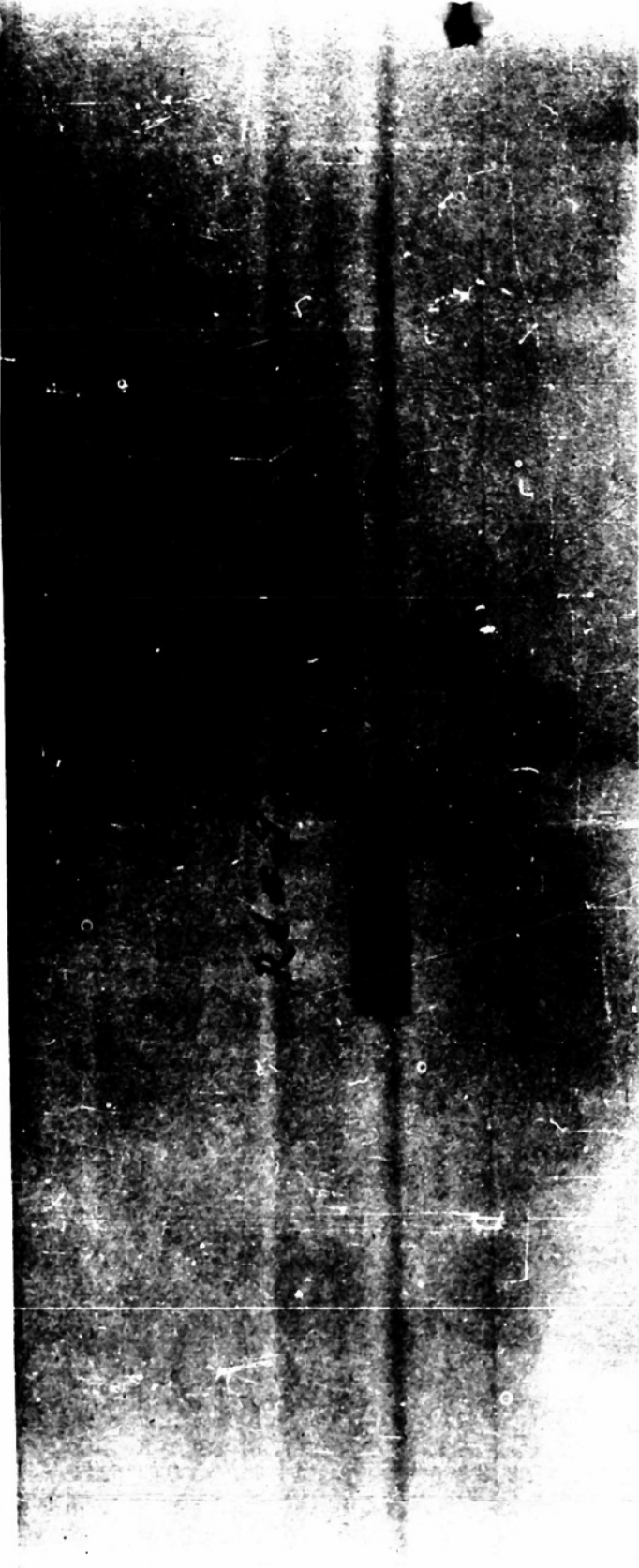


NP9-62486

4 November 1952

Mark 30 Mod 3 PD Fuze, Lot No. EW-LC78B assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 1000 ft. range. Round No. 9.  
Phase No. 2.

CONFIDENTIAL  
SECURITY INFORMATION



NP9-62487

4 November 1952

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 1000 ft. range. Round No. 10.  
Phase No. 2.

CONFIDENTIAL

SECURITY INFORMATION



NP9-62488

4 November 1952

CONFIDENTIAL  
SECURITY INFORMATION  
Mark 30 Mod 3 PD Fuze, Lot No. EW-1078B assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 400 ft. range. Round No. 11.  
Phase No. 2.



Fig 101

NP9-62489

4 November 1952

Mark 30 Mod 3 PD Fuze, Lot No. EW-1078B assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 1000 ft. range. Round No. 11.  
Phase No. 2.

CONFIDENTIAL

SECURITY INFORMATION



NP9-62490

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 1000 ft. range. Round No. 12.  
Phase No. 2.

CONFIDENTIAL  
SECURITY INFORMATION



NP9-62491

4 November 1952

Mark 30 Mod 3 PD Fuze, Lot No. EW-1C78B assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 1000 ft. range. Round No. 13.  
Phase No. 2.

CONFIDENTIAL  
SECURITY INFORMATION



NP9-62492

4 November 1952

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 400 ft. range. Round No. 14.  
Phase No. 2.

CONFIDENTIAL

SECURITY INFORMATION



Fig  
105

conf

NP9-62493 4 November 1952  
Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 1000 ft. range. Round No. 14.  
Phase No. 2.

CONFIDENTIAL

SECURITY INFORMATION

Rd # 14





NP9-62494

4 November 1952

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 400 ft. range. Round No. 15.  
Phase No. 2.

CONFIDENTIAL

SECURITY INFORMATION



Fig  
107

NP9-62495

4 November 1952

CONFIDENTIAL  
SECURITY INFORMATION  
Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at proof pressure. Photographed at 400 ft. range. Round No. 16.  
Phase No. 2.



219  
1087

NP9-62496

Mark 30 Mod 3 PD Fuze, Lot No. ACP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure. Photographed at 400 ft. range. Round No. 17.  
Phase No. 2.

CONFIDENTIAL  
SECURITY INFORMATION



719009

NP9-62497

4 November 1952

CONFIDENTIAL  
SECURITY INFORMATION  
Mark 30 Mod 3 PD Fuze, Lot No. EW-1078B assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at service pressure. Photographed at 400 ft. range. Round No. 18.  
Phase No. 2.



Fig. 110

NP9-62498

4 November 1952

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at service pressure. Photographed at 400 ft. range. Round No. 19.  
Phase No. 2.

CONFIDENTIAL

SECURITY INFORMATION



Fig. 111

NP9-62499

4 November 1952

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile  
fired at service pressure. Photographed at 400 ft. range. Round No. 20.  
Phase No. 2.

CONFIDENTIAL  
SECURITY INFORMATION



219.112

NP9-62500

1 December 1952  
Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired  
at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft.  
range. Round No. 1. Phase 3.

CONFIDENTIAL  
SECURITY INFORMATION



Fig. 113

NP9-62501

1 December 1952  
Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired  
at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft.  
range. Round No. 1. Phase 3.

CONFIDENTIAL  
SECURITY INFORMATION

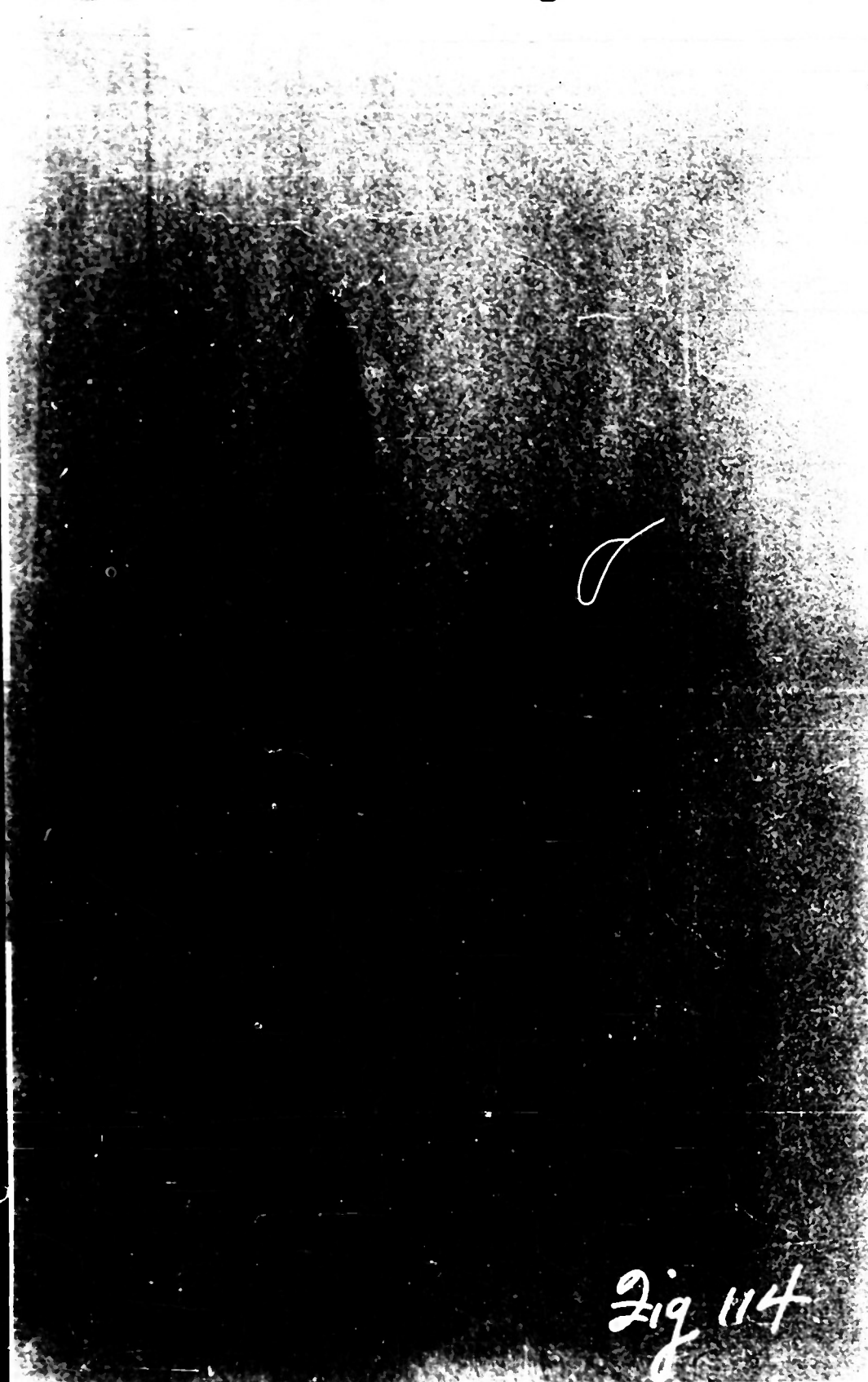


Fig 114



NP9-62502

1 December 1952

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 2. Phase 3.

CONFIDENTIAL

SECURITY INFORMATION

10/1/52  
p. 4



Fig. 115

NP9-62503

1 December 1952

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 2. Phase 3.

CONFIDENTIAL

SECURITY INFORMATION



Rd. 2

192

CONFIDENTIAL  
SECURITY INFORMATION

NP9-62504  
1 December 1952  
Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 3. Phase 3.



Fig 117

NP9-62505

1 December 1952

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No: 3. Phase 3.

CONFIDENTIAL

SECURITY INFORMATION



NP9-62506

1 December 1952  
Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 4. Phase 3.

CONFIDENTIAL  
SECURITY INFORMATION



Fig. 119

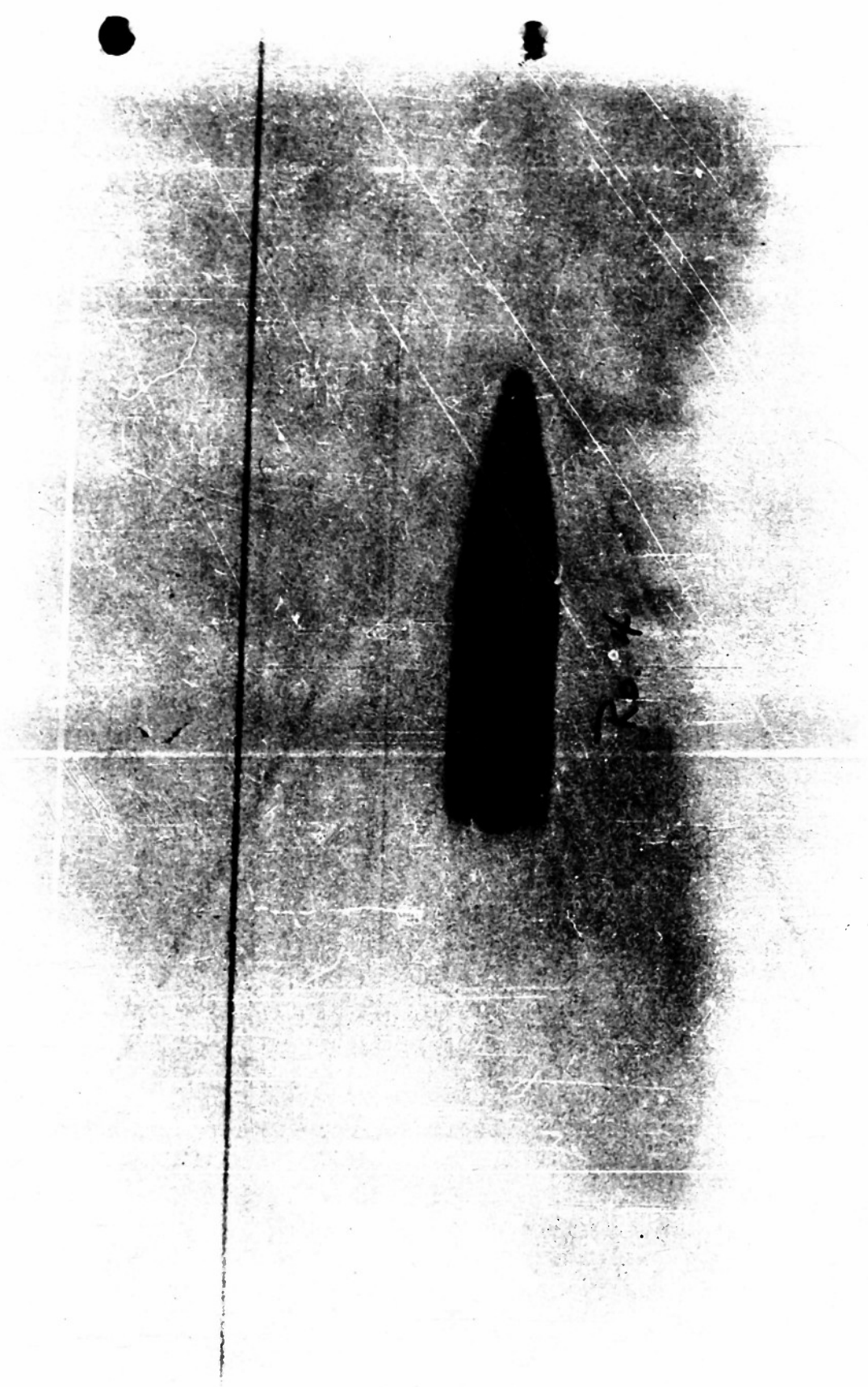
NP9-62507

1 December 1952

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod C gun No. 7959. Photographed at 1000 ft. range. Round No. 4. Phase 3.

CONFIDENTIAL

SECURITY INFORMATION



NP9-62508

1 December 1952

CONFIDENTIAL  
SECURITY INFORMATION  
Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 5. Phase 3.



Fig. 121



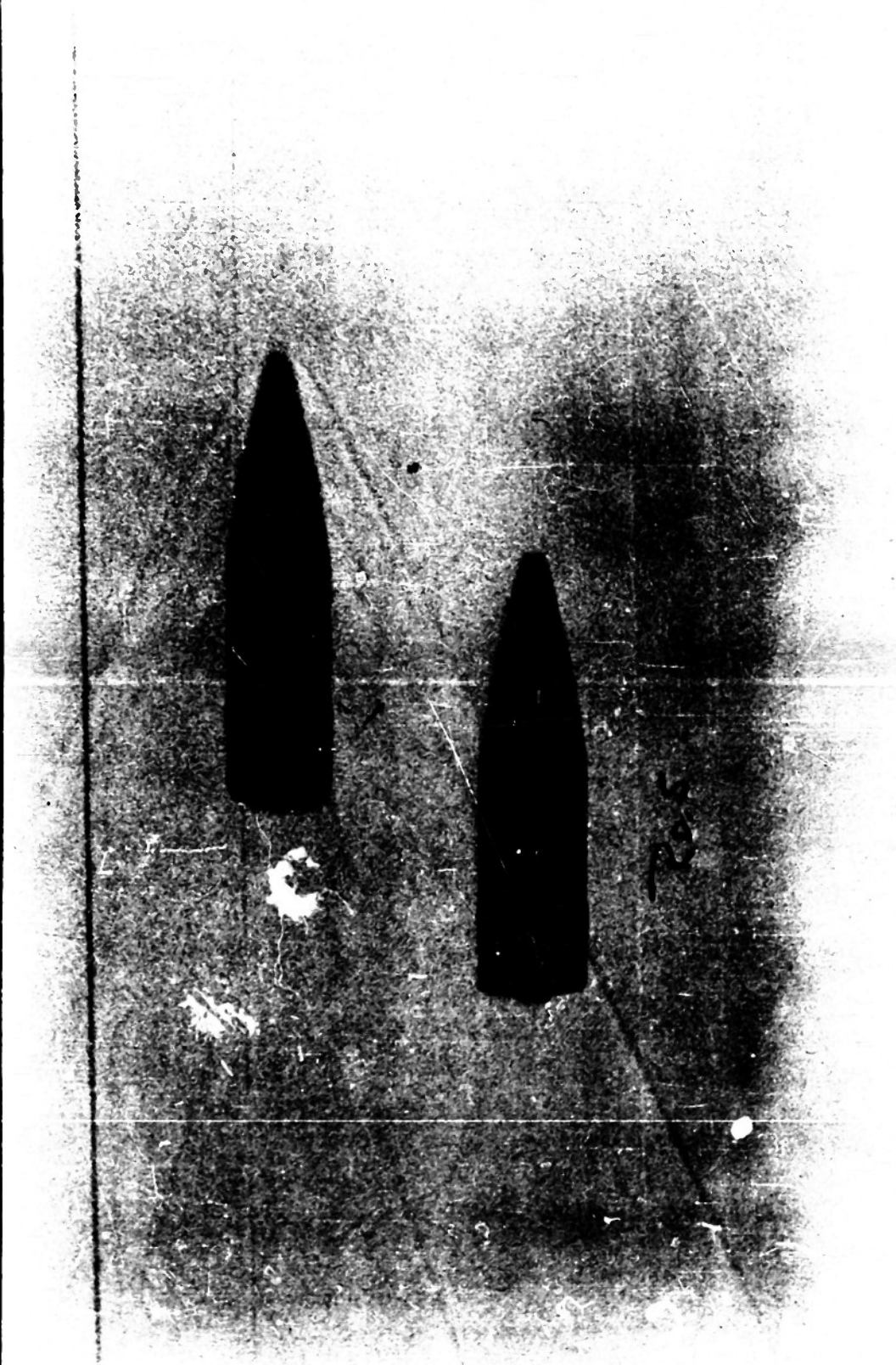
NP9-62509

1 December 1952

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile-fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 5. Phase 3.

CONFIDENTIAL

SECURITY INFORMATION





NP9-62510

1 December 1952

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 6. Phase 3.

CONFIDENTIAL  
SECURITY INFORMATION



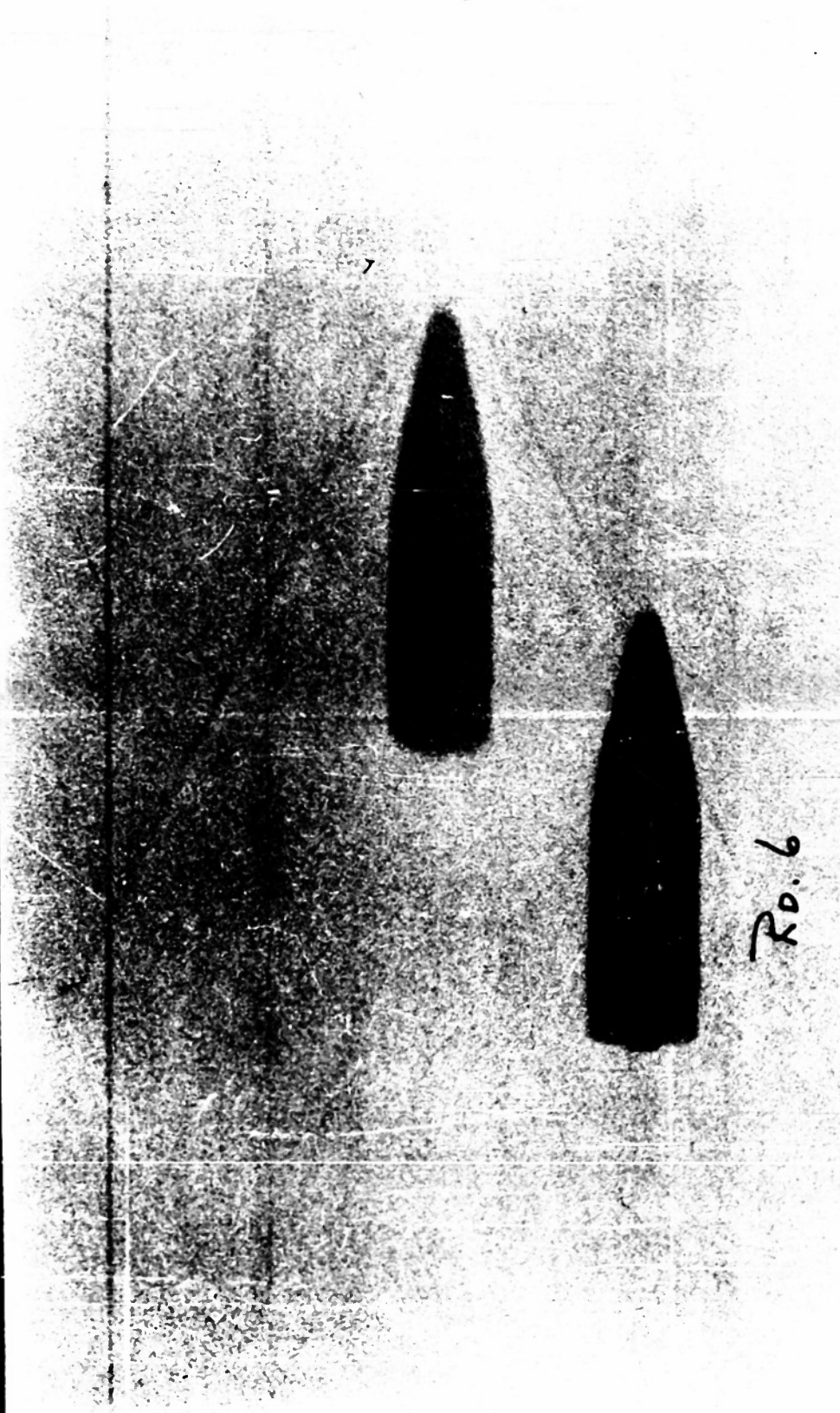
Fig. 123

NP9-62511

1 December 1952

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 6. Phase 3.

CONFIDENTIAL  
SECURITY INFORMATION



Rd. 6

NP9-62512

1 December 1952

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 7. Phase 3.

CONFIDENTIAL

SECURITY INFORMATION



Fig. 125

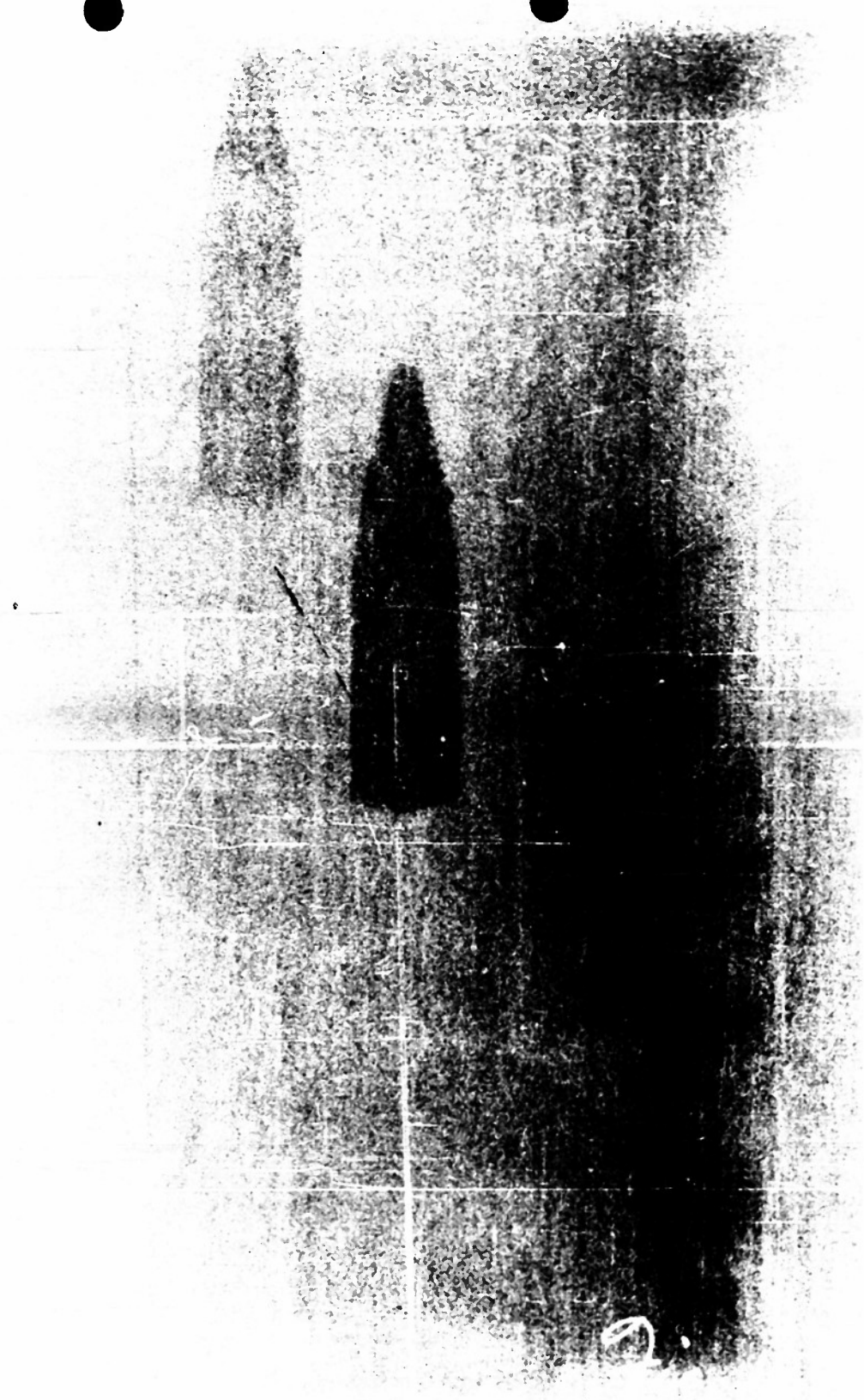
NP9-62513

1 December 1952

Mark 30 Mod 3 PD Fuze (lot APP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod C gun No. 7959. Photographed at 1000 ft. range. Round No. 7. Phase 3.

CONFIDENTIAL

SECURITY INFORMATION



NP9-62514

1 December 1952  
Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired  
at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft.  
range. Round No. 8. Phase 3.

CONFIDENTIAL  
SECURITY INFORMATION



Fig. 127

W9-62515

1 December 1952

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 8. Phase 3.

CONFIDENTIAL  
SECURITY INFORMATION



Ro. 8

NP9-62516

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 21 Mod 0 Gun No. 7959. Photographed at 1000 ft. at proof pressure from 3"/50 Mark 21 Mod 0 Gun No. 7959. Round No. 10. Phase 3.

CONFIDENTIAL  
SECURITY INFORMATION

8 December 1952

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 21 Mod 0 Gun No. 7959. Photographed at 1000 ft.





NP9-62517

12 December 1952

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 13. Phase 3.

CONFIDENTIAL  
SECURITY INFORMATION



Fig 130



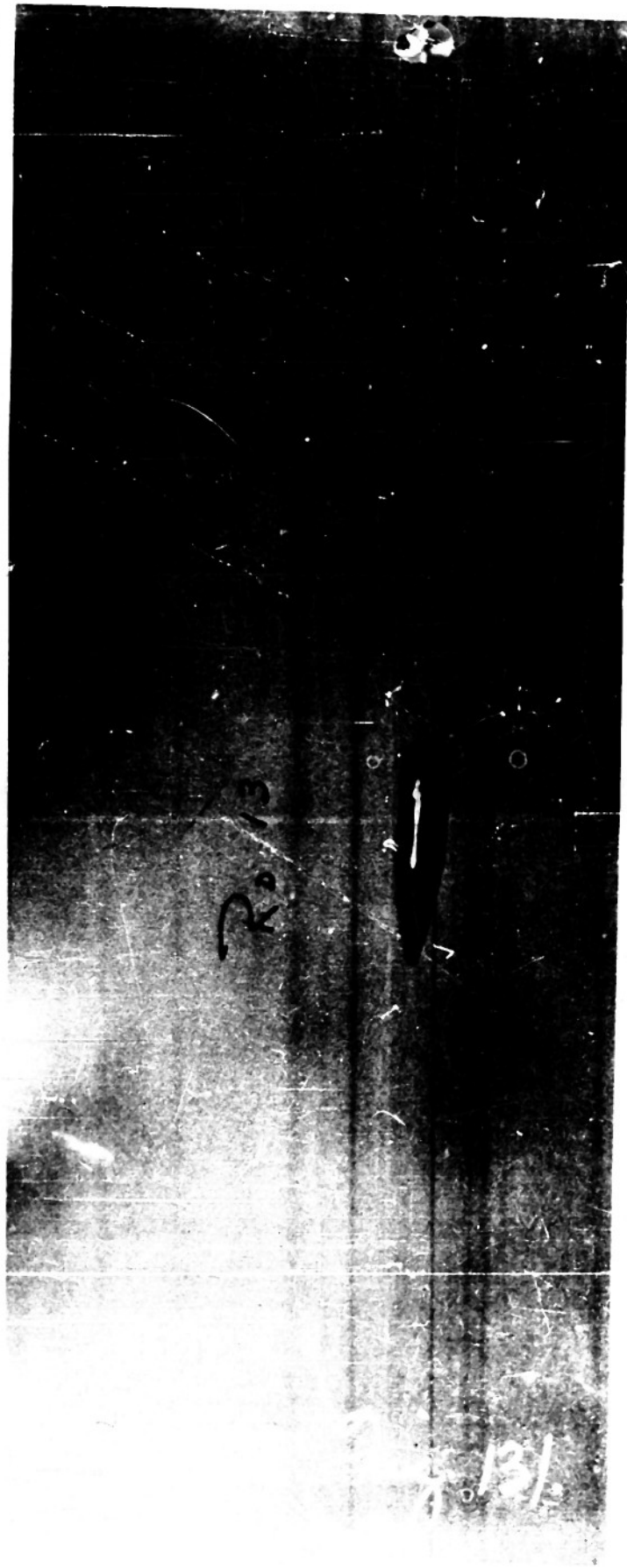
NP9-62518

12 December 1952

Mark 30 Mod 3 PD Fuze (lot AOP-63) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 13. Phase 3.

CONFIDENTIAL

SECURITY INFORMATION



Mr 9-62519  
Mark 30 Mod 3 PL Fuze (lot ACP-63) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 14. Phase 3.

CONFIDENTIAL

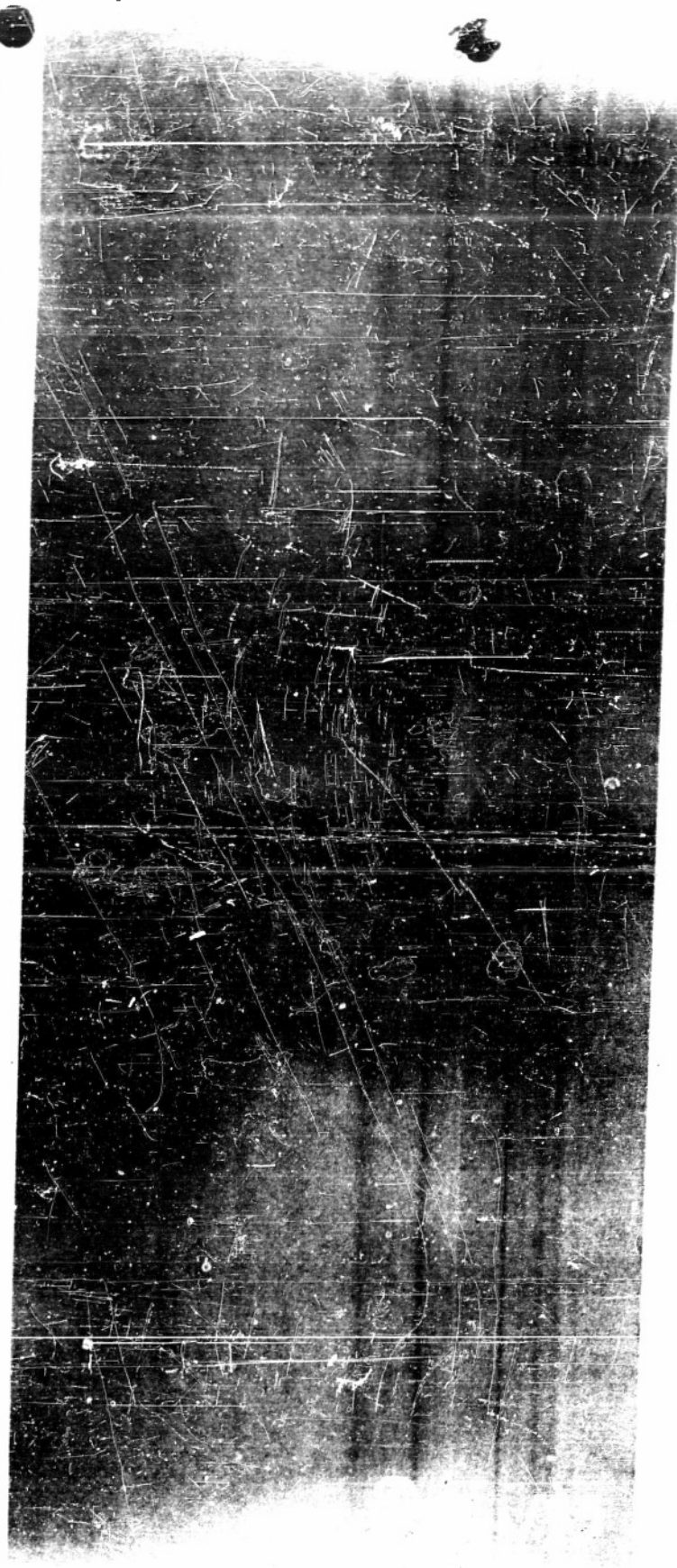
SECURITY INFORMATION

Fig. 132

NP9-62520

Mark 30 Mod 3 PD Fuze (lot AQP-83) assembled to 3"/50 Mark 27 Mod 0 gun No. 7959. Photographed at 1000 ft.  
at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Phase 3.

CONFIDENTIAL  
SECURITY INFORMATION



NP9-62521

12 December 1952

Mark 30 Mod 3 PD Fuze (lot ACP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 15. Phase 3.

CONFIDENTIAL  
SECURITY INFORMATION

Rd. 15

NP9-62522

12 December 1952  
Mark 30 Mod 3 PD Fuze (lot ACP-83) assembled to 3"/50 Mark 21 Mod 0 gun  
at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft.  
-range. Round No. 16. Phase-3.

CONFIDENTIAL  
SECURITY INFORMATION

12/12/52  
11 11/12/52

Fig 135



NP9-62523. 12 December 1952  
Mark 30 Mod 3 PD Fuze (lot ACP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired  
at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft.  
range. Round No. 16. Phase 3.

CONFIDENTIAL  
SECURITY INFORMATION

2016

APG-62524

Mark 30 Mod 3 PD Fuze (lot ACP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 17. Phase B.

CONFIDENTIAL  
SECURITY INFORMATION

12 December 1952

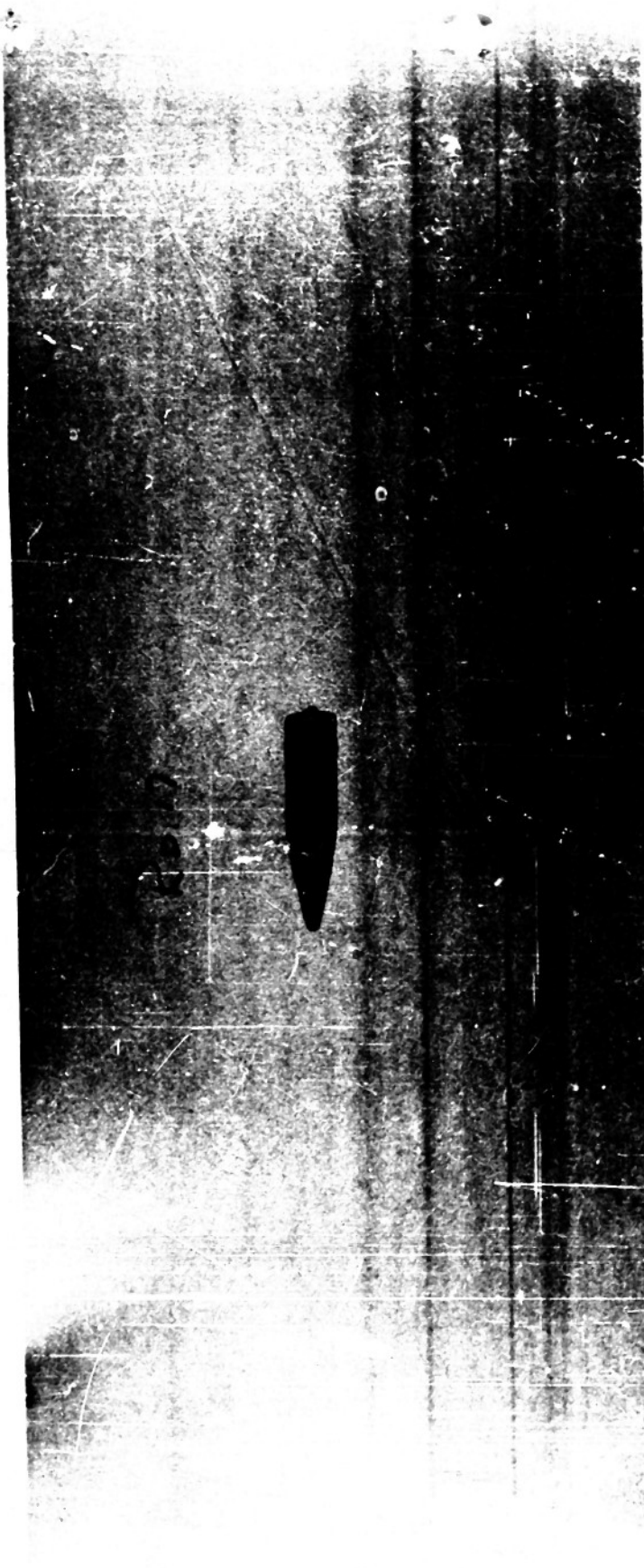
Mark 27 Mod 4 projectile fired at 400 ft. range. Photographed at 400 ft.

R412/52  
Rd # 711  
MK III

Fig. 137

NP9-62525 12 December 1952  
Mark 30 Mod 3 PD F4ze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired  
at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft.  
range. Round No. 17. Phase 3.

CONFIDENTIAL -  
SECURITY INFORMATION





CONFIDENTIAL  
SECURITY INFORMATION

12 December 1952  
 NNP9-62526  
 Mark 30 Mod 3 PD Fuze (lot AOP-63) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 18. Phase 3.

12/12/52

Fig. 139

NP9-62527

12 December 1952

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 18. Phase 3.

CONFIDENTIAL

SECURITY INFORMATION

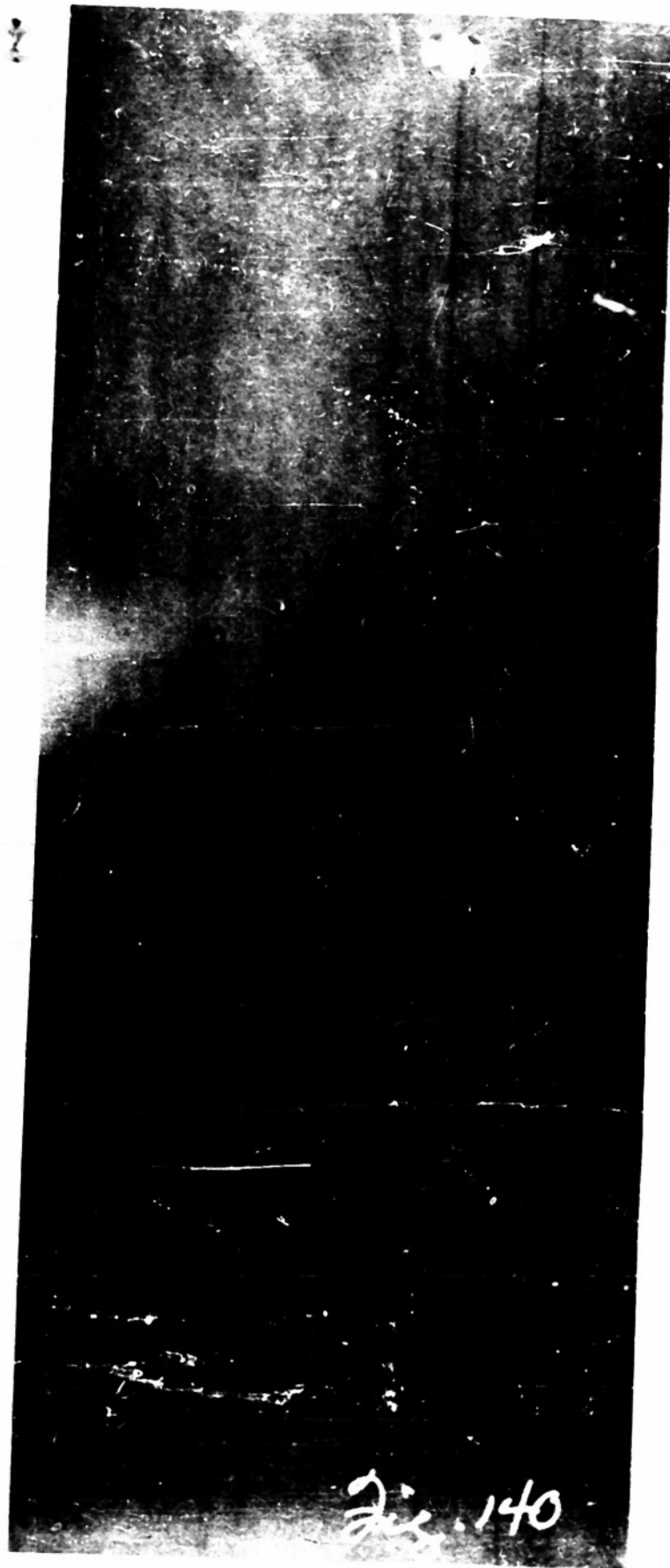


Fig. 140

NP9-62528

12 December 1952

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 19. Phase 3.

CONFIDENTIAL  
SECURITY INFORMATION

Fig. 141